

# An Experimental Study of the Factors and Types of Voluntary Choice

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# AN EXPERIMENTAL STUDY OF THE FACTORS AND TYPES OF VOLUNTARY CHOICE

BY  
ALFRED H. MARTIN

ARCHIVES OF PSYCHOLOGY

EDITED BY R. S. WOODWORTH

No. 51

NEW YORK  
MAY, 1922

AGENTS: G. E. STECHERT & CO. : London (2 Star Yard, Carey St., W. C.); Paris (16, rue  
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# An Experimental Study of the Factors and Types of Voluntary Choice

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## I.

### INTRODUCTION AND HISTORY.

The problem of will is twofold in that it is inclusive of "inner and outer volition." While the latter is single, the former implies the latter as a consummation of the internal act. "Inner volition" implies deliberation and choice, resulting in a decision to carry out the chosen course of action, "outer" involves a resolution to carry out the act either selected or obviously present to the mind. The former process is, of its very nature, intellectual, with a final resolution into a "mental set," while in the latter case the "set" is arrived at without a deliberate act of choice. The main purpose of this study is an attempt, first at verification of the work already carried out in the field of voluntary choice, and second at a further extension of the investigation to the nature of the mental set involved.

More than in any other field of the thought processes, speculative and theoretical considerations have been put forward, that have shaped and guided investigation, so that even in a very brief survey of the history of the subject a treatment of this aspect, no less than of the strictly experimental side, would appear to be necessary. Further, experimental investigation is meagre and limited, and is supplemented in many textual expositions by such general retrospective speculation.

#### (a). Theoretical Discussion.

James (9. Chap. XXVI.) regards the basis of will as constituted by an inherited tendency to action, and, with the arousal of more than one such tendency, a plurality of possibilities in the shape of impulses, is generated; the result is a mutual inhibition or suspension of action until one of them prevails. When the thought processes enter in as an integral part, the phenomenon of voluntary choice may be said to be

present. Five distinct types of decision are recognized by him and consist of,

- (a). The "reasonable type," where the arguments naturally settle themselves and the process is largely rational.
- (b). Where the decision is "given in haste and without due deliberation," owing to the immediate pressure of circumstances.
- (c). The type where "the individual wearies of the conflict" and commits himself to one or other alternative.
- (d). "From the easy and careless to the sober and strenuous level," due to the introduction of some moral factor.
- (e). The type where decision is accompanied by a "sense of effort," where we feel that we have deliberately chosen.

Stout (19. Chap. X.) uses four similar categories with almost equivalent terminology. Calkins (5. Chap. XII.) in considering these types, divides them into two main classes, first, those where a sense of effort is present, that is to say, where we appear to act against the line of greatest resistance and second, those where an established system of comparative values makes the choice a mere imaginal comparison of such values. In the former case, in spite of the effort of choice, the two alternatives still persist though decision in favour of one of them has been arrived at, while in the latter case the resulting act excludes the one possibility with the acceptance of the other alternative. Wundt (26. No. 14.) likewise differentiates the two types, by the use of different terms for the resulting mental sets. Where marked conflict is present with a state of doubt which is only ended by a strong effort, then the process is one of "decision," which is intensively stronger in consequence than when the process is comparatively easy and ends in "resolution."

The consideration arises, as to what is the main factor in the "sense of effort" and in other types of decisions. James suggests that it comes from a greater degree of attention to one factor rather than the other, but does not explain whence the additional degree of attention originates. McDougall (11. pp. 242 and 247.) follows James in regard to his identification of the "effort" with an increased attention as the factor, but adds, as an explanation, that, "in this self-conscious act of will, the idea of self or self-consciousness is able to play its great role in volition only in virtue of the self-regarding

sentiment, the system of emotional and conative dispositions that is organized about the idea of the self and is always brought into play to some extent when the idea of the self rises to the focus of consciousness. The conations, the desires and aversions arising within this self-regarding sentiment are the motive forces which, adding themselves to the weaker ideal motive in the case of moral effort, enable it to win the mastery over some stronger, coarser desire of our primitive animal nature and to banish from consciousness the idea of the end of this desire."

Stout (19. p. 707.) treats the problem in similar fashion, but where McDougall definitely attributes "sense of effort" only to the presence of the self-regarding sentiment, Stout refers all forms of volitional choice to the interposition of a self-factor, and "under the concept self as expressed in the word "I" is included in systematic unity the life history of the individual, past, present and future, as it appears to himself and others together with all its possible or imaginary developments" . . . . "The motives are motives only in so far as they arise from the nature of the self, and presuppose the connection with the "self" as a determining factor. From this it follows that the recognized reasons for a decision can never constitute the entire cause of a decision. Behind them there always lies the idea of the self as a whole. What this involves can never be completely analysed or stated in the form of definite reasons or special motives." Calkins (5 p. 226) also specifically emphasizes the ego-centric nature of volition. "In will I am actively, assertively, related to my environment, I am conscious of my superiority and my independence of it, I conceive of it as existing mainly for my own use or gratification." And she finally dissents emphatically from any attempt to define the act merely in structural terms of sensation, image and feeling, the "consciousness of the self as willing" being utterly irreducible to such.

Pillsbury (16. p. 525.) summarises the action of voluntary decision as "the whole man active in coming to the point." Warren (22. pp. 310-311. defines volition as selective "in that it tends to bring about the fittest actions." It is marked by anticipatory images from which this selection takes place. When a real decision is reached, the image becomes a purpose idea. The purpose image then is based upon a memory image aroused by distant sense data; and the distinguishing mark

between a purpose idea and other anticipation images is the prominence of our own activity in the purpose experience. Purposes are thus anticipatory representations of our actions, and they approach more or less to the rational type of behaviour.

Ogden (15. p. 172.), while postulating a growing purposiveness and polarisation of self and object, finds in volition the "consciousness of a self-determined act". . . . "such as does not appear in any other form of mental happening." Like Calkins, while acknowledging the presence of the structural elements, he regards the consciousness of the "actual moment of self" as a distinct advance in psychological discovery. Titchener (20. p. 467) also recognizes that in the will act, in which voluntary decision will be included as a type, there is essentially a reference to the psychological self, but would insist "that the will attitude is rarely explicit or focal but is, as a rule, incorporated in the total reaction consciousness." Külpe's (10. p. 265.) position is opposed to any such factor of decision as the "self" entity; his attitude is purely "structural" in character. The "self" that operates in the formulation of a decision is only an interpretative shadow whose true origin is in the bodily self, and when a total response of the latter by means of a kinaesthetic image or sensation is made at the temporal point of decision, then this effect is transformed into a more or less philosophical but unpsychological representation of self. As to the selective principle which dominates the procedure and maintains direction to a final goal, this is, for him, amply provided for by Wundt's principle of apperception.

To summarize the preceding, voluntary acts differ from impulsive types in the fact that deliberation precedes the consummation of the act. This deliberation proceeds upon a basis of the individual's past experience and personal evaluation of the alternatives. In the final act of choice the self identifies itself with the act, and the voluntary choice or decision becomes complete in itself. In certain cases of conflict the decision is only ended by a distinct "effort" of the subject, hence the "ego" factor is increasingly evident as a moment of decision; this type is characteristically the unique type of decision. Other types, such as forced decisions, may be arrived at from pressure of time, or circumstances, such as lack of knowledge; or one factor of greater weight may so exceed the others in importance as to be accepted without conflict. The latter are

variable types that approach, but do not attain to, the highest levels of voluntary choice.

(b). Experimental Results.

The history of the experimentation on the side of volition begins with Ach (1), who tested out Wundt's logical analysis by experimentation and discovered that the "will-act" really took place in the fore period through the acceptance of the Aufgabe of the directions as understood by the subject. During the main period, the will act was consummated according to the previous "mental set" achieved by the subject.

His next researches (2) led him into further investigation of the will act by the interference method. He caused his subjects to learn nonsense syllables of three letters by the method of "paired associates," the strength of such associations being measured, in psychological terms, by the number of repetitions. After the learning part was completed, the subject was given the task of responding to a list which included the original stimulus words under the special direction of either riming, reversing the first and last letters, or using an unrelated word. As, in some cases, the preformed associations interfered with the performance of the will act, this resulting disturbance was measurable by means of the chronoscope in temporal terms. When the subject became conscious of his error, the result was a strengthening of the "determining tendency." Introspection showed that this was due to the inner resolve to do better when the internal distraction was recognized. This "determining tendency" Ach ascribes as directly due to the interposition of the self entering in as a conscious factor, "I can and I will" being its internally vocal or ideational expression.

The same year, R  we, (17), investigating the voluntary process on the side of development of motor skill by means of typewriting methods and unfamiliar writing postures, found that the methods adopted were at first perceptual and ideational, but that these "gropings" became automatised in a definite kinaesthetic set which was of an ideo-motor character.

These investigations of the will act itself, however, do not afford any light upon the matter of voluntary choice, and were criticized on this account by Selz (18), in his appraisal of Ach's work. The investigation of this side of the will act was taken up by Michotte and Pr  m (13). Seeking the simplest

material possible, they used the operations of addition or subtraction, or of multiplication or division of simple numbers, and caused their subjects to choose the working out of one of the two operations for "weighty reasons." One of the pairs of the alternatives was shown in the fore period, while the numbers were exhibited in the main period when the choice took place, the stimuli being exposed by means of a card-changing apparatus. Their results show that the process divides into well-defined and articulated parts.

- (1) During the fore period comes:
  - (a) The acceptance of the Aufgabe,
  - (b) A subsequent period of expectancy.
- (2) In the main period:
  - (a) The realization of alternatives in the case,
  - (b) The consideration of these alternatives,
  - (c) The act of choice.

The investigation was completed before the publication of Ach's work, and independent of it, but is corroborative of it in regard to the actual "moment of choice." This factor designated as "*la conscience d'effort*" the authors identify with that of Ach's determining tendency, i.e. that of the self. Michotte, in a supplementary note to the original work, makes a comparison of his own work with that of Ach (2) which had appeared just previous to his own publication. Criticism may be directed to the work from two points, first, that the choice is not finally consummated into a will act, and again, that the motives are too trifling for such weighty process as voluntary choice. Such criticism the authors have anticipated, and reply that the pressing of the reaction key really appeared as the consummation of the act, and in the second regard the subjects felt as if they were really making an important decision.

Barret (3) carried out investigations in motivation, using as a stimulus eight beverages, ranging from unpleasant to pleasant in taste and distinguished by names. When the association of name and taste was complete, they were used in regular series. The time of choice and the time of lifting the glass containing the drink was noted, and there was found a regular decrease in reaction times of both; the values, already quite familiar singly, being soon learned relatively between each pair of the series. His work was not confirmatory to that of Ach or Michotte and Prüm, principally, as Michotte

points out, on account of the automatised form of the process of choice.

In a study of decision types by Bridges, (5) investigating the relation between the constancy, time and accuracy of decision, a variety of material was employed, such as the arrangement of series of names of persons and objects. The same experiments were repeated after given periods of time had elapsed to test the subject's consistency. The term "decision" however, does not appear to be a happy one, for the process usually so designated is specifically related to volition, while, so far as the work of Bridges shows, the choice was probably made for aesthetic reasons rather than for the purpose of future activity, and should pertain to the category of judgment.

Wheeler (24) followed up the attempt to improve the methods (a) by using more important and concrete practical material, such as pictures and pianoforte selections, and, (b) by actually fulfilling the act of choice. The names of two pianoforte selections were exposed for the subject to choose from, the piece chosen being played afterwards on a pianola. Again, two pictures were exposed, the subject choosing one of them to hang in his room. Results confirmatory of those of Michotte and Prüm's work were obtained, so far as the structural elements are concerned, but the "decision factor" of the self was pronounced to be lacking, the "self moment" that appeared in previous work being due, the writer thinks, to incomplete analysis, lack of training in the reagent, or individual prejudice in the interpretation of the results on the part of the experimenter. Ultimate analysis must yield only elementary sensory and imaginal experiences, such a term as "consciousness of self" being synthetic and interpretative rather than final and analytic. Wheeler's position is typically structural in character, and his analysis closely follows that given by Külpe.

The result of the experimental work, then, is the discovery of the fact that, when a mental set originated by an act of will is interfered with, the result of such disturbance is to arouse an added measure of the original determining tendency to overcome it. In the case of voluntary choice, the act of decision is also effected by this identical factor, viz. the self that functions as a determining tendency. The validity of such an "interpretative functioning" has been challenged by the contention that all such entities may be reduced to analytic structural factors of sensation, image and feeling.

## II. METHODS AND PROCEDURE

The aim of the present investigation was twofold; first to verify the previous work done upon voluntary choice, and second to examine the after period by interference with choice by any available methods. The work was carried out in the graduate Laboratory of Columbia University, during the two semesters of the year 1920-1921, under the direction of Professor Woodworth.

In the first series the subject was asked, during the fore period, to imagine himself in a certain predicament, and then, during the main period to consider two alternatives in order to solve his dilemma and make a choice between them. This having been done, full introspections were then taken. Where necessary, questioning was resorted to in order to clear up obscurities, after the method of Ach, but this became less and less necessary with the progress of the subject in the work. A certain evaluative judgment of the subject's confidence in his choice, and its degree of seriousness and difficulty, were also obtained. In certain of the situations the subject was next required to "reconsider his decision, with a view to its reversal." Further introspections of this stage were then taken, and the degree of possibility of reversal also noted. Since these situations were more or less hypothetical and the decisions impossible of immediate execution, the work was checked up by a second series wherein the reagent was required to choose one of two odors, the one chosen being smelled by him for a period of two seconds, thus actually carrying the decision into execution. The procedure was similar to that of the first series. The time in every case was taken by means of stop-watches marking fifths of seconds. As the time varied from 2.5" to 190", such a means presented a sufficiently accurate method of time record for the purpose of the experiment.

The subjects consisted of two members of the Teaching Staff of Columbia, in the Department of Psychology, designated S. I. and S. II., four graduate students in Psychology, of whom S. III. and S. IV. were men and S. V. and S. VI. were women, and two undergraduate women students, S. VII. and



S. VIII., who had attended courses and engaged in laboratory work in psychology. To all these the experimenter desires to express his gratitude for their cheerful and ready endurance, both of protracted sittings and of frequently disturbing experiences.

Since the process was decidedly mental the image types of these subjects are incidentally of interest. They were predominantly visual with kinaesthetic forms present to a less degree; the single exception was one of the graduate women,—S. V. whose verbal-motor speech images were even more frequent than the visual. This subject, with one member of the Teaching Staff, S. I., who also had marked kinaesthetic images, exhibited a peculiar tendency to schematise, the one in visual, the other in visual and verbal motor terms; this was also noted in others, but in a much less marked degree. Thus S. I's. reference to "short, acute pains" as compared with "slight protracted pains" visually appeared as two contrasted normal curves of distribution. (Fig. 1.)

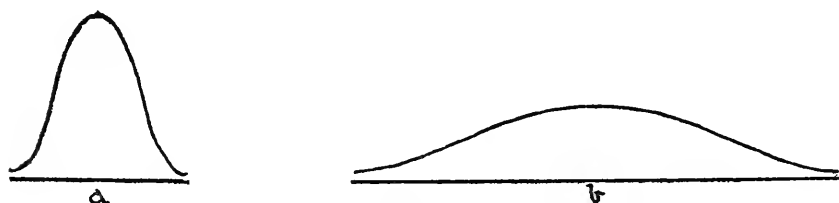


Fig. 1.

In a second case, one of synaesthesia, of the same subject in the fore period (a) of No. 28. . . . "There developed a vague visual schema, (Fig. 2.) with certain kinaesthetic elements also present. On the left was a line and a movement rather long, and apprehended as vertical. On the right was a shorter line of that kind, and present in both was a kinaesthetic experience of a feeling of length, as if I looked along each and realised the length of one and the shortness of the other. With the short line on the right was a kinaesthetic reference from that line outward, and I was aware that this represented the relation of this girl, whom the short line stood for, to her father. The father himself was not represented. Apart from the schematic representations of the relation the process was imageless."

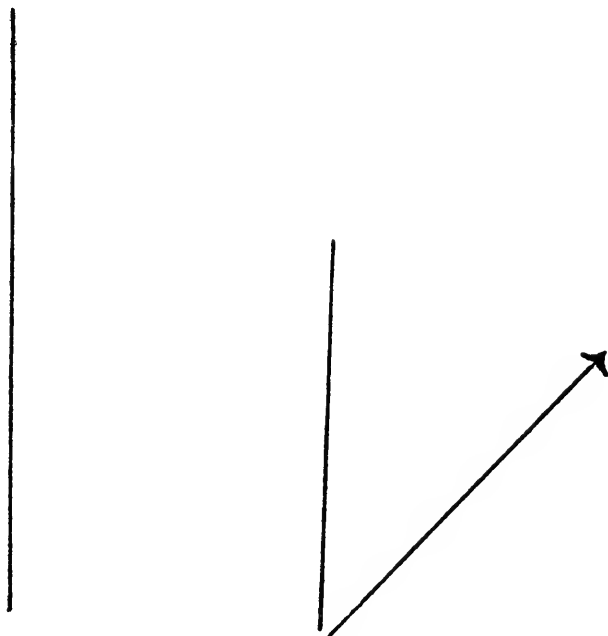


Fig. 2.

In regard to the latter, S. V., whose schematic references, also synaesthetic, were less frequent, the following is typical. The reference comes from the forepart (a) of problem No. 21. "Reading the situation brought the following scheme (Fig. 3.) into my mind."

"Eye movements were experienced as the eyes seemed to travel along the lines, while in the background were two vague pictures of Edison, one as a lad of twelve and one at the present time. The lines to the left were hazy and indistinct and seemed to lead off into space, since I could not remember other mechanical achievements, but the others led up to more or less clear visual images of the actual objects."

The first series consisted of problems that contained (a) a situation and (b) the alternatives that offered a solution of the situation. There were thirty of these in all, but included among them were a certain number of judgments that could by no means be classed as decisions but were prepared in similar fashion to the others. The situations and alternatives were suggested by a class of graduate students as being typical of those in which they had actually found themselves. Out

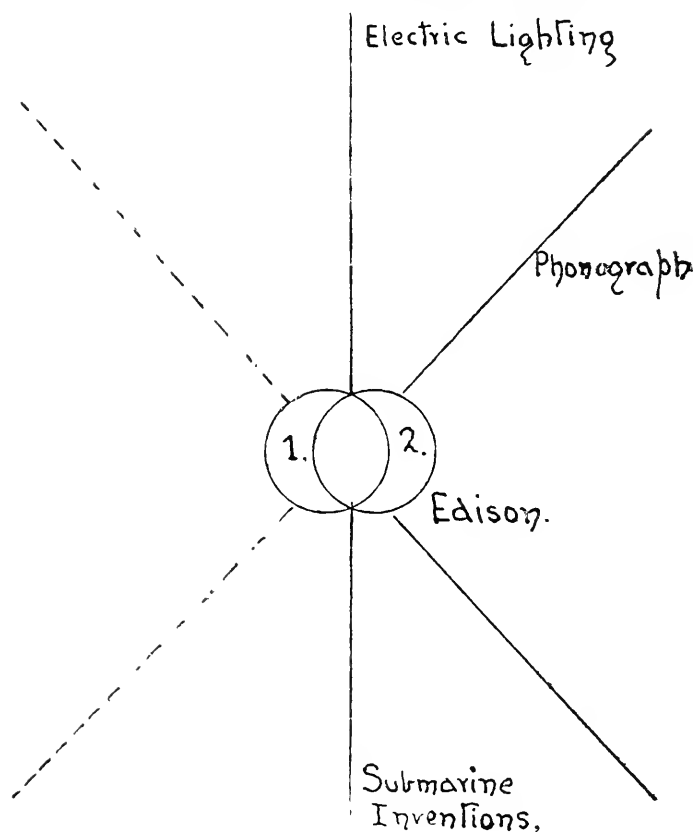


Fig. 3.

of the mass handed in, the members of the series used were selected as being reasonable, practical and fairly general in type. They were then each arranged in two parts, constituting the fore and the main periods, as previously mentioned, each part being separately typewritten on a slip of paper. In addition, pictures were used in five cases, these appearing as alternatives in the main period. They were arranged in grey surrounds and pasted side by side on stiff card. These picture choices, situations and inferences or judgments were combined, and comprised in all thirty problems in this series. They were graded in regard to the combined degree of difficulty and seriousness of the problem into four classes, and an average obtained by means of this classification. The judges, ten in number, were members of the Staff of the Departments of Psychology within the University. While the variability

of the judgments was very great, plainly indicating the presence of subjective factors, at least a series that approximated a progressive arrangement in these two respects was obtained. The "judgments" were included with the "decisions" and given positions with the others as if of a similar type.

Below are typical examples; where "R" is marked after the number which indicates place in the series, the subject was asked to consider the possibility of a reversal of his decision. The numbers where this was required were indicated to the experimenter, however, by a private mark on the covering page, namely the inclusion or omission of the punctuation point after the number, so that the subject was not aware of the time when this requirement was forthcoming. Half of the examples, fifteen in number, carried this requirement but the succession was in chance order.

No. 3. R.

- (a). You are attending a match and your side appears to be on the point of winning,
- (b). Someone offers to bet a box of candy that the opposing side will be victorious; would you accept or reject?

No. 6. R.

- (a). The hour is late and the day has been tiring; you are about to take the "subway" home, when suddenly you discover you have lost your money;
- (b). Would you choose to walk the distance home or risk explaining your quandary to some decent looking stranger?

No. 11. R.

- (a). You are preparing to attend a social gathering at a home not previously visited.
- (b). Would you prefer to go in evening dress with a chance of being made conspicuous, or in ordinary dress and perhaps feel out of place?

No. 12.

- (a). You are convalescing; it is your first day out of doors and the weather is bright but cool.
- (b). Would you prefer to sit in the sun in an uncomfortable chair or in the shade in a comfortable one?

## No. 13.

- (a). You are telling a story to an interested company, when suddenly you realize it has a personal bearing on one of them.
- (b). Would you choose to disappoint your hearers by suddenly breaking off, or continue in deference to your audience regardless of the individual's feelings?

## No. 15.

- (a). You will see two coloured reproductions of Landscapes by Van Hier.
- (b). Choose which of these you would prefer to hang in your own room.

## No. 19. R.

- (a). On returning home after making a purchase, you discover that you have been given more goods than you paid for.
- (b). They would never be missed, and their return involves the dismissal of the employee responsible. Would you return or retain them?

## No. 23. R.

- (a). You have made a true but damaging statement about an individual who is pronouncedly hostile to you:
- (b). Would you rather apologize to your enemy, or make a public defence before an unsympathetic audience?

## No. 25. R.

- (a). You wish to attend Science Courses which are available at either of two Colleges.
- (b). One offers good instruction with poor apparatus, and the other indifferent instruction and a fine laboratory; which would you choose to attend?

## No. 26.

- (a). You have invited out to dine a new acquaintance, whom you wish to impress favourably.
- (b). On finding you have forgotten your money, would you rather borrow from your companion, or risk the unpleasantness of an explanation to the management to whom you are personally unknown?

Examples of "Judgments" are shown in the following:

No. 16. R.

- (a). Longfellow immortalized many characters in his verse.
- (b). Which do you think the more popular, "Hiawatha" or "The Village Blacksmith"?

No. 21.

- (a). Pass in review the many inventions of Thomas Edison.
- (b). Would you consider Electric Lighting or the Phonograph the greater achievement?

In addition to the customary introspection the following estimations of degrees of confidence, weight and difficulty of decision were asked for.

(1). Grade your decision by the following scale, according to the degree of finality or confidence with which you would be prepared to act on it:

- (4). Perfectly confident.
- (3). Confident.
- (2). Some degree of confidence.
- (1). Not really decided.

(2). Grade the importance of the decision to you personally by the following scale, according to its gravity and weight.

- (4). Extremely momentous.
- (3). Serious.
- (2). Of some weight.
- (1). Unimportant.

(3). Grade the difficulty with which you arrived at the decision by the following scale.

- (4). Very difficult.
- (3). Difficult.
- (2). Of slight difficulty.
- (1). Easy.

Various forms of the demand to change the decision arrived at, of which the following are typical, were tried out in practice tests.

- (a). "Your decision is aesthetically wrong, try to bring your judgment into conformity with that of others."  
and,
- (b). "Now endeavor to make a reversal of your choice, and arrive at a contrary decision."

In the end it was thought best to keep this stimulus uniform throughout, rather than gauge the effects of varying forms of it, so that finally the latter form was adopted for all reversals.

After the attempt at reversal, and at the conclusion of the subject's introspection, the following estimate as to difficulty of reversal was asked for.

"Estimate the difficulty in reversing your decision by the scale below;"

- (4). Utterly impossible.
- (3). Barely possible.
- (2). Reasonably possible.
- (1). Easily possible.

The stop-watches used in the first series were fastened upright in convenient wooden stands, with the "heads" projecting slightly above the top so that they could be easily pressed. At the same time they could be conveniently read by the experimenter. By placing them adjacent to each other, No. 1 could be stopped and No. 2 started by the same movement of the hand. The average degree of error found by reading the differences in a series of twenty simultaneous startings and stoppings was found to be only .05", an infinitesimal amount when the greater inaccuracy of communicating the time of decision and the necessary stopping of the watch is taken into consideration.

The reagent was seated comfortably in an armchair, and, after being shown a sample of the problems, the following instructions were read to him: "Make your decision for good and sufficient reasons from one of the possibilities given. Work deliberately throughout and do not hurry over any part. Try to decide so that the situation appears as your own, and its contents a personal matter. At the same time do not labour over the decision, but let it be formulated as naturally as possible. When completed, pause to fixate your observations before communicating them to the experimenter." Then an example with a cover page was handed to him, and when he turned the cover, a stop-watch was started. When the first part had been read through and the situation grasped, the subject turned to the second part; then the first watch was stopped and a second one started simultaneously. When the decision was arrived at, the subject signalled to the experimenter, and the watch was stopped. This was found to

be more convenient than asking the subject to attend to this matter, for it in no way seemed to contribute to the acting out of the decision as was suggested in the work of Michotte and Prüm. In some cases in the trials, the tendency was to forget to press the spring in the absorption of the choice. After a short trial series had been worked through by the subject, the regular series was attempted. When the decision had been arrived at and the introspection written out, the subject was instructed to evaluate his choice in the terms previously indicated.

In the second series, where choice of odors for smelling by the subject was made, the series consisted of eight liquids coloured for their identification by him, and numbered for the same purpose for taking records by the experimenter.

They consisted of:

<i>Number</i>	<i>Solution</i>	<i>Colour</i>
(1).	Asafoetida Weak $\frac{1}{4}$ strength.	Light Brown.
(2).	Valerian Extract $\frac{1}{4}$ strength.	Carmine.
(3).	Eucalyptus.	Clear White.
(4).	Vanilla.	Violet.
(5).	Oil of Cloves.	Green.
(6).	Valerian Extract Full strength.	Dark Brown.
(7).	Lysol.	Medium Brown.
(8).	Asafoetida. strong.	Dark Chocolate.

They were presented in pairs, by means of an exposure apparatus consisting of a small cloth screen, which was suspended in front by means of an electrical magnet at the top of a stand. A stop-watch was so arranged in a fixed support that when a short projecting lever arm pressed down the watch to start it, contact was also broken in a circuit, allowing the curtain to fall and exposing the bottles. The subject was required both to start the process and stop the watch on arriving at a decision. Before actually commencing work with the series, the subject was practised a number of times in starting and stopping the apparatus, and when proficient, proceeded with the regular series. Before actual experience taught him the olfactory values of the contents of each bottle, he had only the distinguishing colour to guide his choice. Later, the colour became associated with the actual odors, and



thus served as an indicator of the olfactory quality, and hence, for him, of the real value. After a decision had been arrived at, the subject was required to give an introspective account of the process, and to evaluate his reactions as in the former series, as to degree of confidence in his decision and difficulty of arriving at the choice, the degree of gravity being omitted in view of the fact that all choices in the series were of the same type throughout.

Requests to reconsider decisions were then made by handing to the subject a typewritten slip bearing the legend previously used: "Now endeavour to reconsider your decision and make a reversal of your choice."

The time for this second reaction was noted as before, and after introspection, evaluation for "Confidence and Difficulty" was required, as in the case of the original decisions. The odors were presented once in turn in each of six rounds. By excluding each as it was smelled by the subject, and by a careful process of juxtaposition of the remainder this was rendered possible. Two rounds were worked through in each sitting, the order of succession being different each time. Thus three sittings were completed by each subject, at intervals of from three to four days between each. The subject was in no way informed of these arrangements, and the irregular order of presentation tended to keep him more or less in ignorance of the procedure. At the end of the second sitting the subject was asked to arrange the bottles in order of merit, in so far as his experience guided him, and this procedure was again required at the end of the third sitting. When this last arrangement was concluded, the subject was again required to arrange them by means of a rating of smell values without regard to any other values. For this purpose any direct comparisons that he needed to make in order to be quite certain of values were actually made by him. This final scale was used as a basis for checking up the two previous scales.

While the first series attempted an investigation of situations from practical life which, however, were impossible of actual realization in the laboratory, the second series seemed to offer a ready method of comparison with it. On the one hand was a process arising from a hypothetical situation and, on the other, a practical problem (even though trivial) realizing itself in action. In this way a control set of one against

the other was secured. By the method of following up the choice with a demand for reversal, not only was the period of choice subjected to examination, but the after period and the nature of the mental set with its possibilities of modifiability were also brought under investigation.

### III. QUALITATIVE ANALYSIS

Before attempting a detailed analysis of the various developments of the process and their emergence into defined types, an illustration that presents the processes as a whole provides not only a sample of the method of procedure, but also shows the need for detailed discussions of the progressive stages. In the succeeding paragraphs there are given two typical samples of introspective results—one from each series—together with the time and the subject's ratings as to confidence, difficulty, and so forth. S. I. No. 10.

(a). You are unprepared for a change in the weather, which has suddenly turned cold and rainy.

(a). Time, 9.2".

"It was represented by a street scene; a point on the left side signified my location. My view was to the right at that point. All that was present was a downpour,—definite kinaesthetic and visual streaks from above down on the visual field. There was also present a second part to which I turned my attention, i.e. 'unprepared.' I cannot say how I thought of it, but I seemed to feel it as a 'thinness or lightness' with a general awareness of my skin. This feeling was not a temperature image, but like the experience in Spring, when one takes off heavy winter garments,—hence there was a motor feeling of lightness."

(b). Your way of getting home is by riding on top of a "bus", and thus risking pneumonia, or in an overcrowded subway train with an influenza epidemic at its height: which would you take?

(b). Time: 29.6".

"First came a faint visual picture of a bus pointed towards me, with the awareness that it meant coming 'up town' as opposed to 'down town.' This was followed by a vague outline of the top of a bus and the bodily presence of myself in the back right hand corner. The most conspicuous parts of this image were my shoulders and especially my chest. That disappeared, and the second alternative took form as a small area of a subway crowd, not larger than I could reach out and touch with my hand. I was the centre of this area. There

was a definite kinaesthetic 'suggestion' of restiveness and a visual element with vague patches, meaning, 'people in close contact.' This was associated with general bodily discomfort and a feeling of closeness, with a shrinking from them. The word 'influenza' was followed by a third image, with the consciousness, that this was closely related to the second rather than the first. Human faces appeared wearing handkerchiefs or influenza masks; there was a definite kinaesthetic sense of direction to the north, meaning, P. . . . . Then, in a curious way, I reviewed the whole episode of the influenza epidemic at P. . . . ., and the wearing of the masks, but present with this was a definite notion of calm and security. This was in contrast with the emotional tone of the first image (chest and shoulders prominent), which was accompanied by mild fear and avoidance. I then reverted to the words on the page. Having been represented the images passed out, and I fixated the phrase, 'risking pneumonia', that was accompanied by the same mild emotion of fear. Then I reverted to the image of the white masks, and this constituted the decision. The feeling of the act of coming back to this was recisive. Underneath all this was something not represented in imagery. Verbally it was, "You once had pneumonia and it might be dangerous for you, whereas you went through the 'flu' epidemic without any harm. With this was the attitude, 'I must take this reference to my past experience as crucial and determining this present decision.' I cannot say how articulate this was, but it was decidedly present."

Confidence—3 or confident.

Weight—4 or extremely momentous.

Difficulty—2 or of slight difficulty.

(c). Now endeavour to make a reversal of your choice and arrive at a contrary decision.

(c). Time: 38.6".

"The Aufgabe was accepted with great reluctance and an undertone of annoyance. All that I seemed able to recall here was, what seemed to be auditory in form, the word 'pneumonia', accompanied by a definite feeling of dissent. There was a distinct sensation of sinking back on my decision when I heard 'pneumonia,' but when I considered the other alternative there was a rising towards it: then the audition of 'pneumonia' seemed to make me sink back again. The final

decision appeared to be that of a 'falling back,' probably a relaxation of muscular set. There was, throughout, a distinct feeling of effort accompanied by the meaning, "I must honestly try to do this," which involved the 'rising up' towards the 'pneumonia.' It appears, judging from the protracted time that it seemed to take, that more must have gone on here, but I can't say what it was." (The experimenter then asked the subject to compare (b) and (c) in regard to degree of effort involved and amount of clearness)." "Part (b) involved no effort but (c) required a marked degree of effort. Part (b) was very much more vivid than (c)."

Possibility of Reversal—4, Impossible to reverse.

### Series II

S. IV. Round 3. Odors presented were, on the right, No. 4. Oil of cloves, colour green, and left, No. 5. Vanilla extract, colour purple.

(a). Fore period. "An attitude of expectancy and curiosity was felt, accompanied by marked tension of the throat and vocal chords."

(b). Main Period. Time 3.2".

"As the curtain fell there was a marked feeling of tension and suspension of breathing. On seeing the bottles the green one was noticed first: I looked back and forth for some time and remembered I liked both, but almost at once decided on the greenish one as having a much more pleasing odor. With this came a faint, olfactory image of 'wintergreen' and this seemed to play an important part in the decision. The one chosen seemed much more attractive than (5), which was regarded with indifference rather than with repugnance. With the decision there was a definite kinaesthetic act of choosing. There was a kinaesthetic image as of going away from the purple towards the green. The decision was accompanied by a sudden liking for the one chosen which made it stand out very clearly. The final act was accompanied by marked satisfaction. There was, after this, a definite kinaesthetic 'set' as of being about to reach out towards the one chosen and then smell it."

Confidence—4, perfectly confident.

Difficulty—2, of slight difficulty.

(c). Now endeavor to make a reversal of your choice and arrive at a contrary decision.

(c). Reversal Period. Time: 6.2".

"I merely glanced at the paper to reassure myself of the usual instructions, at the same time with pronounced feelings of irritation. Then I looked again at the exposure stand. I paid particular attention to the purple bottle and tried to call up an olfactory image of it so that I might put it on a level with the green. It refused to come, but the image of the green bottle returned, though not so vividly as before. It was vague but I endeavoured to cling to it, for it seemed that, if I lost it, I would have to accept the purple, which I really did not want to do, for having reached the decision the first time, I did not like changing again. The effort of attempted recall was very strong, but the 'purple' odor refused to come, and I felt that the image of the green was weakening, so I decided to reaffirm my former decision. The satisfaction here was not marked. Not only was I irritated by the demand to reverse, but there was also a marked feeling of annoyance at not being able to recall the olfactory image of the purple.

Confidence—4, perfectly confident.

Difficulty—1.5, between easy and of slight difficulty.

From a perusal of these examples it is evident that the conventional stages of fore period, main period, and the after, or reversal period are obvious and convenient divisions for discussion, and contain within themselves well defined processes, divisible, where necessary, into sub-processes.

#### (a). *The Fore Period*

In the first series the fore period takes on a primary importance, the task or Aufgabe demands not only a general mental set as a preparation for (b) the main period, but the calling up of a situation that in large measure determines the factors of choice. Thus while the outlines of the actual situation are prescribed, the details are filled in subjectively. It is for this reason then, that in the first series, the same situation ranges from "trifling" to "serious," or of "some weight" to "momentous" in the same examples, according to the estimation of different subjects. That which appears simple and trifling to one individual, seems to another to assume grave importance. The fact coincides exactly with similar experiences at the different stages of one's life, that which is, at one stage, of serious moment, appearing at another an insignificant detail. The degree of seriousness depends, in the main, as to how far

such an occasion has previously entered into the subject's experience, e.g. whether entirely novel, or similar in type to some previous experience frequently met with, and secondarily, on the disposition and mood of the subject.

The adoption of the Aufgabe was at first conscious, but afterwards became less focal in character; there was a definite striving to formulate the situation so as to meet its demands, which was general to all subjects.

S. I. No. 4.

"I read over the sentence twice and noticed that my attention was called to the word 'limited.' I turned back, having a kinaesthetic sensation of the eyes in doing it. For a moment I dwelt on the word and its meaning. In thought arose the question, 'How limited?' After fixing this and raising the question I decided to go ahead. I had a vague feeling of dissatisfaction and dismay at the indefiniteness of the situation as I was conceiving it, but I decided to go ahead."

S. II. No. 11.

"On reading the facts of the situation there came to me a visual image of a man's dress suit, but I corrected it so that it became an image of a woman's evening dress. The thought came that it would be more appropriate to decide from this point, and then I had a visual image of an evening dress of my own."

S. III. No. 2.

"When I read the words the situation left me cold and unmoved. My attitude was matter of fact, and I accepted the situation only in thought. There was a slight feeling of dismay and anxiety that I had not managed here to pin down a real situation, so I began to cast round for a something more real and definite. Then I commenced to imagine myself at the corner of 116th. street and Amsterdam Ave., I had a visual image etc."

S. IV. No. 5.

"With the reading of (a) came a moderately vivid kinaesthetic image of tiredness in eyes and head. (I feel tired sometimes in the eyes.) There was some effect on the breathing which seemed to slow down. A relaxed feeling more pleasant than unpleasant stole over me, and I visualized myself in my room in a Morris chair. Suddenly I realized that this was not completing the situation, so that my attention was directed to the outside of my room, and I faintly visualized a storm with thun-

der and lightning. There was an idea of the rain also, that must have been present as a very faint auditory image."

S. V. No. 3.

(a). You are attending a match in which your side is winning.

"Had a feeling of expectation before turning the paper; on doing so read through the whole with internal speech, the word 'match' seeming to stand out. Immediately there flashed into my mind the visual image of a basket ball game that I had recently attended and next of a tennis match. The latter was very vivid and I waited awhile recalling visually some of the strokes that were played. But the thought came 'I must not waste time but fix the situation', so I determined to keep to the tennis match. I thought, in meaning, "This will do nicely, so I'll make it the tennis match.'"

Later as the process became more mechanized and the reagent more confident, the tendency was to seize the main points in a given situation without delay, and if the situation did not readily realize itself, to pass on and rely on further details such as would be supplied in (b), to formulate it more definitely.

S. II. No. 7.

"I could think of no particular experience that would help me to a realization of the situation, but it formulated itself in thought without the interposition of any perceptible images. Having pondered it awhile I turned the page to see what the alternatives were."

S. IV. No. 25.

"The term 'Science Courses' was not clear, I thought of them merely without any image. 'Two Colleges' also came by thought process alone. When I had related the two ideas, I had a thought that it would be best to pass on to the next part, and then I would be able to get the whole situation clear in my mind, so I passed on to (b)."

S. VII. No. 23.

"I had a difficulty in forming a definite picture of the situation suggested in (a) since it seemed so complicated. I thought over people that I knew—mainly by means of visual images—but I could not think of one to whom I might apply it; I therefore knew I would have to invent one. I thought of a friend of mine whose father was a physician, but I waited until I had read (b) to make the whole setting more concrete."



## S. VIII. No. 17.

"First I thought vaguely of our home in the country with a vague visual image of part of the inside of the house,—the living room and library, where I proposed to hang the pictures. I had a curiosity to see the pictures themselves, so I turned to (b) knowing that I would better be able to decide on the place to hang them when I had seen them."

This is, perhaps, the more correct psychological procedure for, in a practical situation, the tendency is to formulate a decision along with the focussing of the various factors of a situation, rather than to perform the two acts separately, cognition being a concomitant of, not a preceding act to, volition. At the same time, the realization even in bare thought of such a situation as the fore period (a) describes, tends to create a background for the situation, and thus readily permits a focalization of the necessary factors.

Frequently at first, with the formulation of a situation that met the demands of the task, there followed a slight pause marked by relaxation of effort, a relief from tension and well marked feelings of satisfaction with the achievement. It corresponded to a halt in the work to "note progress." This was general to all subjects in the early stages, but became less prominent with the mechanization of the process.

## S. I. No. 6.

"I felt I had a good situation clearly in mind and felt pleased, and the feeling of strain lessened considerably for the moment."

## S. III. No. 8.

"Was glad I had made such a suitable response and I relaxed to some extent."

## S. II. No. 18.

"As I turned the page, the thought came that I had fixed the situation so that I would be ready to meet the alternatives."

## S. IV. No. 10.

"Thought this idea met the situation very well and was very well satisfied; at the same time the tenseness in the frontal region temporarily disappeared."

## S. VI. No. 3.

"I knew that I had fixed it as well as I could manage."

## S. VII. No. 5.

"I thought, 'this will be just the thing.' As soon as I had realized the situation the strain lessened considerably."

In some other early cases before mechanization of the process, in place of the pause of satisfaction, the tendency was towards an anticipatory state; expectancy, curiosity, and even apprehension entering in. In regard to the latter component, a direct shift of tension about the region of the diaphragm accompanied it. The other conditions are corroborated both by Michotte and Prüm (13) and Wheeler (24), and by results obtained in the second series of the present experiment.

S. I. No. 17.

"Thought perhaps they would be like the two landscapes of the previous experience. With this a sense of satisfaction came over me, and I felt the muscles of my face relax as if I was smiling."

S. IV. No. 6.

"Having done as well as I could manage, I was impatient to turn to the next sheet to observe what was there."

S. VI. No. 9.

"Fixated the situation and was anxious to see what was coming. Wondered what the alternatives of this situation might be, and hoped they would be pleasant. Did not like the situation at all, and wondered if the possible alternatives would be very unpleasant. There was no relaxation of the strain in throat and forehead, and there was a sinking feeling as of dread about the diaphragm, just as if something I did not like was about to happen."

In two cases subjects reported having arrived at a solution to the situation before even the main period was reached, the state of anticipation having realized itself without delay.

S. III. No. 9.

"A visual image (of my friend) quite distinct in detail, came to me, and I thought of what might be preferred. Immediately some pictures that I had seen in the bookstore came to me and I thought verbally, 'Those will be the very thing.' Then I remembered I could only choose from the pictures submitted, and hastily turned to (b)."

S. VIII. No. 6.

"Saw myself at 42nd Street Station just about to enter. Just then I imagined myself going up to the desk, and looking down saw my pocket book was missing. I felt dismayed, and stood a little while undecided as to what I was to do. I had a kinaesthetic image of tiredness in my legs and head, particularly about the eyes. Suddenly I thought of a taxi, and the

thought came with it, 'I'll pay "him" (the driver) when I get home.' I felt and saw myself walking up to Broadway and calling up a 'Black and White' taxi, since it would be cheaper; and next I found myself at home going upstairs to get the money to pay the driver.

Then I turned to (b) and, on reading it, the image of myself and the taxi 'crashed out' of my mind; it left me just tired, helpless, and, for what seemed a long time, I was unable to get a new 'set' for the suggested alternatives. They came very slowly and with difficulty."

These cases corroborate what has already been suggested as to the inseparableness of the statement of the problem from the consideration of the alternatives for its solution; the two are as involved in their operation as cause and effect, like them being separable only in regard to their theoretical consideration.

*(b). The Main Period.*

The main period comprises two well defined divisions, distinct in their processes and their products; the former may well be termed associative, the direct product of the *Aufgabe*, while the nature of the latter is characteristic of, and peculiar to, decision alone.

The associative side may be again divided into realization of the alternatives, which implies also a degree of evaluation, according to their feeling tone, and the continuation of this process of evaluation into one of comparison. There is found no hard and fast line of demarcation between these two minor processes, for they merge imperceptibly. The stages are distinguishable, however, if not separable. The two processes are essentially intellectual, and, to use Wundt's term, "apperceptive" in their character, for there is a definite attempt in all cases to first link up the preceding period (a) with the factors suggested in the present, (b), and to evaluate them in accordance with past experience.

S. I. No. 19.

(b). "The first thought that occurred to me was a specific occasion of having previously been given goods I had not paid for, and with it a vague visual image of the place where this occurred. I read the next clause,—'their return involves'—here came a vague visual representation of the store and the path leading to it, but the 'store' end developed. There was a

vague rectangular representation of the store with two people in it. One man was near the door while another was further back,—employee and employer. About the middle of the sentence I made a tentative decision, somewhere about the word 'return.' 'Certainly I will,' came the thought. Then a curious state of mind came up. It involved a discussion of the whole of McDougall's 'Social Psychology,' and its consideration of the development of moral ideas. I had a diagrammatic representation of the development of the topic, which came as a kind of background in connection with this. It signified, 'Here is a case of what developed in this diagram, but something is certainly withheld here.' This was not articulate but present as a thought. As I went on, 'involves the dismissal of the employee,' the schema was replaced by an image of the store again. The focal thing now was the man near the door, and for him I had a distinct feeling of pity. With that came a feeling of negation and reluctance on my part."

S. II. No. 10.

(b). "At first a visual image of a green 'bus moving along in my direction come fairly clear to me. The upper part was very distinctly outlined, though the lower was somewhat vague. This was accompanied by a cold image and I felt myself shiver. Next appeared a visual image of the 'subway' as it appears at 14th Street. Crowds of people seemed to be surging past me. They were coming from above,—that is to say, the top of the stairs. The 'bus image alternated with that of the subway. Then came a digression in thought concerning 'flu' and its causes. The thought came that the average person will tell the cause with certainty, while the doctor hesitates. I then turned to the alternatives again, and felt my eyes moving to and fro, now fixed on the bus and now on the subway entrance. This occurred at least four times. With the bus was a disagreeable feeling of cold accompanied by shivering; with the subway came smell images of the crowds and of the subway itself; these were also disagreeable."

S. III. No. 11.

(b). "To the question—"Would I prefer plain or evening dress?"—there was an immediate feeling of stress and strain evoked by the situation which was very unpleasant; it was most pronounced in the thorax, and I noted my breathing was suspended. There was a decided feeling of annoyance and

irritation. Immediately I felt myself attempting to escape by looking for a chance of evading the problem by thinking, 'I'll find out what others wear.' This was, however, evidently not allowed by the conditions; I knew that I had to go without finding out, so I dismissed the former idea. Then I re-read the question, and the thing that stood out prominently was the strong dread of being conspicuous. A feeling of hurt pride and dignity that was most painful and annoying, increased whenever I thought of this phase, so I tried to avoid it. I pictured myself in plain dress with others in evening clothes, this was soothing to some extent, and then I reversed conditions and was not at all satisfied, for this seemed to make me more conspicuous and hence the annoyance increased. I tussled with the situation to and fro for some time before deciding."

S. IV. No. 10.

(b). (Standing at Columbus Circle),—"I had a visual image of a bus coming towards me in the rain. I had a sensory image of being cold and chilly, and felt myself shiver. The thought of pneumonia brought on a feeling of fear located about the diaphragm. The thought came non-verbally, I would have liked the bus very well in fine weather, but now it is too rainy. Then I turned my attention to the subway. This felt warm—here I had a slight sensation of warmth, and besides, I knew I could not get wet. The rain now seemed present outside as an auditory image. Then the condition of overcrowdedness came and I felt strong objections to going home by subway. To this was added the risk of influenza, but the idea came that this might be prevented if precautions were taken. I then considered the two situations, pneumonia vs. influenza, for some time."

S. V. No. 2.

(b). "With the reading of (b) came first, a definite visual image of a mirror. This was transformed into smooth ice, and then ice with skate marks on it. This series had a pleasurable feeling. The 'falling' was only present as an awareness, unaccompanied by image of any sort or any feeling tone. 'Slush' brought up a kinaesthetic image of stepping into half-melted snow, and I thought of a situation where I had to get a car or miss an important appointment. This had occurred to me yesterday, and a fleeting image of losing my car and the dis-

agreeable feeling of annoyance and dismay that followed, surged over me again, and I turned with relief to consider the ice problem."

S. VI. No. 13.

(b). "When I read (b), I thought neither alternative fitted the situation; they came only as thoughts and not as specific cases; at the same time there was a strong aversion to either. Then the idea came in meaning, 'Well, perhaps I can give the story such a generalized bearing that the individual would not be aware of any personal reference,' but I knew this was an evasion of the problem. Then I tried to imagine myself in such a situation in which this would be impossible, so that I would have to go on with the original story or stop. I tried to think of people I knew, with a special reference to some points they were 'touchy' on. There was a strong sense of strain, mainly located in the forehead and frontal region of the head, while breathing was slow and suspended. I dismissed one person I knew since she was merely cynical. Next I thought of a neurasthenic that might be satisfactory, and I had then to think of a case in which the alternatives could come up. I found it and the tension was considerably relieved. As I went on with the story I knew how unhappy this would make her, and I felt unhappy in sympathy with her discomfort. She was in the centre and I saw her clearly with the group round, the latter being rather indistinct. The situation was particularly vivid, and I felt I had arrived at the required situation. It was exceedingly difficult, for I felt chagrin at what everyone would think if I broke off in the middle, for the very breaking off would imply some personal reference within the group; as a result, the woman would be self-conscious and the whole group would feel uncomfortable. When I turned to the other side, I felt that if I went on, the fact that the woman was neurasthenic would make her feel the difficulty very keenly. The only possibility I could think of was to turn the specific reference into a general one, so that she would not think it aimed at herself, and I considered this for some time. The whole occurrence was accompanied by considerable strain and distress of mind that was very unpleasant."

S. VII. No. 10.

(b). "First a visual image of myself riding on top of the bus. The feeling was pleasurable, and the notion came that I

was warm-blooded and I could stand the cold. Then the idea of pneumonia came and affected me considerably, and the former pleasure faded. In the background was a reference to the fact that I had already had bronchial pneumonia and this coloured the situation very strongly. Then I turned to the subway. The thought came non-verbally 'I have avoided pneumonia and I do not want it now.' There was also a background of dislike towards this means of getting home. I had a partly visual and partly kinaesthetic image of myself being wafted along in the crowd, and entering the car at the centre door. Then for a while all the imagery faded and my mind appeared to be a blank. I made a strong effort but could do nothing till I re-read the words, and recalled the imagery with great difficulty. It returned as I read the words, and was accompanied with a markedly disagreeable feeling tone. The effort made itself felt in a strong sense of strain in the frontal region of the head, less marked in the chest, and with suspended breathing."

S. VIII. No. 17.

(b). "On turning to the prints (b), I observed the one on the left first, since the brightness of its colours seemed to attract my attention. Then I felt my eyes turned to the other which was very much duller. Pronounced feelings of pleasure came with the observation of both of them. The one on the left stood out more vividly and forced itself on the attention, but the liking from the first was stronger towards the other on the right. The definite thought came that I liked its dulness and general unobtrusiveness, together with its deeper perspective. I had not yet decided, but turned to the one on the left to attend to it again, and its brightness returned with renewed pleasure, but I felt the Corot (right) was the more attractive with its quiet conservative tone."

For introspective examples illustrative of this stage of the second series, the reader is referred to the discussion on "motivation" (d), where the matter is treated in detail.

If, now, this part of the decision process be compared with the corresponding side of the judgments, there is found, throughout all four cases given to each subject, two main differences: on the one hand, in decision, the subject himself is always imaged, or else thought of in connection with and forming an integral part of the general situation; in the case of judgments all reference to the subject may be omitted, and

he may remain quite out of the picture. If the images are very vivid in the former case, the subject really lives through the tentative experience, while in the latter, he remains an abstract entity, an arbiter, and by no means a necessary part of his mental pictures; the content being associative and perhaps of a non-personal nature. This essential difference of the subject as content, or abstracted from content, is accompanied by differences in emotional and feeling tone which follow as a necessary consequence of the preceding. Thus situations that involve decision sometimes imply emotions of dread, dismay, exhilaration, and a more or less marked feeling tone of agreeableness or disagreeableness with accompanying stresses and strains. In the case of judgments, the reagent may remain calm and unimpassioned, with no marked stress or strain beyond the tension in the frontal region due to fixation of attention, or, in the case of S. III., of laryngeal tension due largely to the fact that her attention processes were verbal motor. A comparison of the succeeding specimens of typical reports will show the difference, even here, between the two types.

S. I. No. 22.

(b). "Here everything seemed to be based entirely in terms of meanings and thoughts. If verbal elements were present my attention was not on them. My thoughts were to this effect: The primacy of Smith's attempt was just an accident of time. There seemed to be a vague diagram at that point, a line running from the distance towards me. A point or mark on that line designated Smith's enterprise. The meaning was, 'If it did not come then, it must have come later along the line.' Turning to Washington, this was represented by a vague image of his portrait. In addition, there was an awareness that it seemed to be in the air and to stand over something that I conceived beneath it, but this something was not pictured. The meaning accompanying it was that of 'stability,'—there was no movement to it. That meant, for me, 'This work is of a qualitative kind'."

S. II. No. 21.

(b). "When I turned to (b), I felt very satisfied and pleased with myself that I had thought of the same two things as the experimenter. But the thought came that this self-satisfaction was not the point, but rather that I should attend to the consideration as to which invention was the greater. Then the question also came as a thought,—'Greater in what—difficulty



of achievement, or greater as regards human welfare. I determined to decide on it from the point of human welfare, and there came at once a visual image of electric light pictures and of electric lights themselves. The phonograph side was also visually represented by disc records, and did not have much of a chance to come clearly."

S. III. No. 22.

(b). "I took up the question in chronological order. The chief process was ideational, with faint references to vague visual images. Smith was thought of as a positive force in the development of the nation. His contribution did not appear an essential one, he but hastened the work another Smith would have done. Throughout this thought came a vague visual image of Smith in Elizabethan dress among others who seemed to be present in the picture. This was probably a memory image of an old school book. With the thought of Washington came a vague reference to his portrait, which is common in most public institutions. In thought came the idea, 'The work of Washington required genius and personality. Without him, it is doubtful whether the thirteen isolated colonies could have been welded into a whole.'"

S. V. No. 21.

(b). "At first came only a realization of the situation in thought, and the question came up as to whether I must decide from the point of the actual achievement in invention, or as to its after utility. Then the idea appeared in meaning, that others also worked on and improved both the phonograph and electric lighting systems. With this thought came a clear image of the advertisement picture for Mazda lamps. The thought came, 'Well, other electric light companies may provide as good lighting as Edison's bulbs, and the idea followed that a Sonora or Aeolian machine was as good as Edison's.' Here came a distinct visual image of a gramophone. I did not know of the history, or Edison's part in the invention however. Just then I returned to the first question as to which point was to be considered in order to come to a decision. Finally I decided, what afterwards seemed obvious, that, as I did not know the history, I could only decide on the ground of utility. I then began to compare them in this respect."

(b). "Turning to (b) my curiosity was satisfied. I saw in visual imagery Hiawatha and The Village Blacksmith as per-

sonalities together for a fleeting moment, then I was ready to go on. Considering Hiawatha first, there came to me with an auditory image the rhythm of its verse, but I could not catch any verbal imagery. This was followed by a visual image of a body of water, (evidently the reference was 'Gitche Gumee—Big Sea Water'). Turning then to The Village Blacksmith, a distinct visual image came up; the man was standing near his anvil within a vague setting of a blacksmith's shop. I pondered the question in thought, and the idea came, that, if Hiawatha was more popular with children, The Village Blacksmith was more popular with their elders. I rejected the idea that on this account either would be more popular, and tried to consider who would read them. Then it seemed that though children read and memorise Hiawatha, it soon 'gets away from them.' It is an emotional attitude rather than an intellectual one; while, on the other hand, The Village Blacksmith has more content, a stronger appeal to maturer minds, and sticks longer. I weighed these points some time before making up my mind."

S. VIII. No. 28.

(b). "On reading (b) an element of surprise entered in. I had not thought of religion in (a) but of home and school. For a time, the originals passed out and I had to arrange a new mental set to make the comparison. The other faded quickly and was succeeded by a blank period, accompanied by a feeling of disagreeableness and tension in the forehead. Then came into my mind the influence of the Roman Catholic church, typified by a mental image of a priest in clerical dress. This stood for the far-reaching influence of the Roman Catholic church. Next the bare thought seemed to come, 'I do not know enough about religion to settle this.' Outside the Roman Catholic church, perhaps the school may have more influence. Then came up a visual image of a schoolroom, different parts of it looming up in rapid succession, as if I were viewing different aspects of it. I, however, was not present."

In these differences, already apparent, must be found the germ, developing later in final decision and judgment,—of the whole process of self-consciousness. The subject in decision here begins to realize himself as part of the alternative situations, which are finally to develop into real activities, and which he now acts through mentally before committing him-

self to either. In the case of judgment, the reagent remains a passive onlooker throughout, taking no part except at the end to declare the result of the final count.

The period of decision appears to yield three distinct types, each with a characteristic reaction, and possessing some points of identity with those noted by Michotte and Prüm (13). They have been designated here from their more important characteristics, as the Preference, the Conflict and Indifference types: in addition there is also the fourth class, that of the Judgments, which are not choices in any sense of the term, and they, too, require a separate treatment. The first and second appear to correspond to Michotte and Prüm's "Voluntary Decisions", and the third to their non-voluntary or automatic type. These types are also described by Wheeler (24), though not specifically designated by him, and may be found exemplified in a study of the examples of introspections supplied by him. Still, in following up the effect of the after period, it is necessary, for the purpose of the present investigation, to note and designate them.

The *Preference* type appears as the predominant form in which the subject arrives at a voluntary choice. It follows from a clear concept of values of the alternatives and a possibility of their comparison, with a final summing up of the motives. They may be either "negative" according to whether both alternatives are more or less disagreeable to the subject, when one is rejected and the other accepted, or positive, when one is more markedly pleasant than the other, when the alternative attended by the more pleasing motives is eagerly accepted. The degree of certainty with which these motives are apprehended, and the magnitude of the difference between them, are important factors in hastening or delaying the actual decision, and also affect the degree of confidence in the final act of choice. In some cases, there is an initial impulse to one or other alternative—less rarely to both in this type—with only sufficient delay to focus attention on the other alternative to note it, and then to return to the original. In other cases both alternatives were fully reviewed and weighed before final commitment. The former occasions were those where the situations were familiar to the subject by analogy with recent occurrences, in the latter, the situation had to be more laboriously constructed. Nevertheless, the

final act of decision was characteristic for all. There was a tendency for the attention to fixate the chosen alternative, apparent either through an increased vividness of the image or, where the object was concrete, by a concentration of the gaze upon it. In the second series, that of odors, this fixation was an obvious factor of the subject's behaviour, and the experimenter could always tell which odor was chosen by the subject, by noting the direction of the final fixation of the eyes.

Accompanying the attention process were various kin-aesthetic images. In the case of the first series the subject sometimes described the effect as a positive attraction or pulling power of the one image representing an alternative, or a positive repulsion from the other, according to whether the choice was positive or negative in character. Thus there was a tendency "to go forward to," "to assimilate," "to coalesce with," the image, "to identify it with the self," or, on the other hand, "to reject," "to put out of the mind," "to get away from," "to shut out," the more repellent image. Corresponding to this in the second series was a tendency "to regard with pleasure," "to reach out and seize," "to take possession of," or, on the other hand to "reject," "to violently repel," "to brush aside," or "to push away" the rejected bottle. Following upon this was a more or less marked degree of satisfaction with the choice, a relief from tension, e.g. bodily strains, suspense of breathing and tension in the frontal region or throat. Such accompaniments were the less marked where the choice was easy, or of the character of following an initial impulse, but invariably accompanied the more prolonged and strenuous type. Preceding the act and accompanying the bodily tension, the subject was often bowed forward with the head bent, but immediately after the formulation of the decision there came a straightening up and settling back in the chair, and afterwards the release of tension and the resumption of normal breathing.

Finally, synchronising with the decision point, there was a tendency to justify the alternative chosen, by specific reasons, which often arrived with a "rush," thus enhancing the satisfaction of the choice. This process may well be classed as one of "rationalization," in the commonly accepted psychological sense, i.e. a process of justification for the choice after its completion to satisfy oneself rather than of affording

logical presentation of reasons to influence the process beforehand. Where the choice was one of positive acceptance, the reasons were favourable to the object chosen, where the more marked action was one of rejection, then the tendency was to invest the rejection with some negative reasons derogatory to the rejected alternative.

S. I. No. 5.

(b). "There came a visual recollection of a little table and I felt myself sitting down to that table with a notion of, 'That's what I very often do.' I had a feeling of certainty with respect to the choice. There was a kinaesthetic reference to myself as seating myself, as well as the visual representation. There was no real deliberation as I did not consider the other alternative. The only 'other' elements present were a sense of ease and lack of effort, and a certainty with regard to my choice that was agreeable."

S. I. No. 11.

(b). "During these alterations I was aware of the notion that, on the one hand, I should have social standards on my side, on the other, I should feel I had made a mistake. The decision came as an eye movement, the fixation of the words 'evening dress' on the page. I was aware of a definite inclination towards the left, kinaesthetic in character. I had a definite feeling of control of the situation, a dismissal of the one alternative and acceptance of the other linked to the visual shift. The decision seemed as real, on the whole, as a real situation would be, and appeared as a genuine decision. The process was attended by tension in chest and front of the head, but this disappeared when I had chosen. I felt myself settling back in my chair after the stooping position maintained during the process of choosing."

S. II. No. 8.

(b). "There was a disagreeable feeling, and an attitude of disapproval in relation to the person hunched over the table and eating as hard as he could. The thought accompanied it, that it was not ideal or desirable to eat constantly by oneself. This decided me at once, and the image of this person hastily disappeared, leaving the idea, "Well, I've decided not to do that." There was very little tension, but between the attempt to decide and the actual decision itself, there was a suspension of breath and a moving of the eyes from side to side."

## S. III. No. 23.

(b) "The first reaction was one of indignation at the audacity of the question. There came in thought, 'The statement was true and the man an enemy, fancy apologizing for the truth!' This would be compromising a sense of right and wrong and would be cowardly. If I made the statement I would defend it and even take the chance of 'mobbing.' Here came a vague mental picture of a seething mass of humanity surging about me. But the idea came, 'This is too precipitate, so take hold of yourself and consider the situation.' I felt I had to make a distinct effort, located in chest and arms, as if I had to get up out of my chair to do it. I had to think over apologising. Immediately I thought of apologising by imagining myself before an audience, the strong feeling of dislike surged up and I felt I had to discard it utterly. Again the idea that the statement was true flashed into my mind, and I thought verbally, 'Why, the other side haven't a leg to stand on.' Immediately I experienced a kinaesthetic image as if I had launched myself at the decision like a football tackler after being held back. The tenseness disappeared at once and I felt satisfied. After the decision came, I felt an emotional glow of righteous indignation and expectancy, as if ready to meet the antagonist at once and get the affair over. My fists were clenched and my jaws were set in preparation. There was not the slightest doubt in my mind from the first as to how I would act. The only delay was to consider fairly the other possibility. This was the most tense and unpleasant period of the whole experience."

## S. III. No. 15.

(b). "For a moment I felt no particular preference but, as I studied them, I felt a tendency to reject the right hand picture. Then there began to come up reasons for the left hand picture as against the other. The idea came, 'This is a real Dutch setting; the other is nondescript.' The setting of the one was indescribably superior to the other. The one was bright and the other grey-looking. The decision came with a rush and a marked degree of finality. 'This is mine,' I thought, and ceased to regard the other completely; it was as if non-existent for me. The whole experience was accompanied by a minimum of strain and the whole process was even and 'gentle' throughout. At the same time I felt quite certain of my decision which was final and complete."

## S. IV. No. 4.

(b). "Had a visual image of myself hatless and at the same time with old worn shoes, which passed into fleeting image of myself with influenza. The other parts were indistinct. Then the image of the shoes grew brighter, and a temperature and touch image as of myself paddling through water came vividly into my mind. The hat had completely faded out but the reason came in thought, 'My old hat is still wearable, but not these shoes; I'll have the shoes.' The tension in the forehead disappeared at once, and a pleasant feeling of satisfaction came over me with the idea in thought, 'Well, I'm getting a new pair of shoes.'"

## S. IV. No. 30.

(b). "In the first alternative the term 'low grade' brought back a visual picture of myself correcting papers, and not having time to prepare my teaching work effectively. This was accompanied by a very strong feeling of dislike. I seemed to anticipate the term 'future promotion' in my thoughts, and it served as a very strong reason for disliking this idea. With the second alternative came a more pleasant feeling; I had the thought, 'Well, I will just have to be careful with certain comforts,' and a vague image of a schematic table as representing the word 'food' which came in verbal motor terms, cropped up. This image came up clear for a moment and then faded, and I knew that this was what I was going to do—to economize in food. The idea of the second alternative persisted, as it were, under the surface, as if part of me. After the decision I felt very relieved and pleased with my choice which seemed a very good one."

## S. V. No. 8.

(b). "The 'dining alone' idea passed completely out of mind. Then came a visual image of dining out with a friend. We went into a restaurant and before us were the tables with white cloths and flowers in the centre. This brightened and seemed to fill the whole of my mental consciousness. There came a decided feeling of relief, the strong tenseness in my throat went away at once, and I seemed to breathe deeply again."

## S. V. No. 25.

(b). "After the first sentence I had immediate visual images of Colleges X. and Y. and I felt at once I would choose Y. The real decision came with the fading of X. and the

fixation of Y. and the reason came, 'I can attend what classes I choose at Y.' At once tension disappeared and there ensued a decided feeling tone of satisfaction, and I settled back in my chair."

S. VI. No. 1.

(b). "The image of a small racing car with a yellow body came and persisted. I did not consider the blue. I had the idea, 'Well, the yellow looks nice but the blue is characterless; I'll take the yellow.' I had a distinct feeling of satisfaction, and the image of the yellow auto grew more distinct and then gradually faded. A feeling of myself possessing the car seemed to take its place."

S. VI. No. 3.

(b). "There was a slight conflict between the thought of betting on a certainty and the pleasure of the bet itself. I thought, 'Well, if the other is foolish enough to bet I might as well take it. The bet would make for partisanship.' There was an increased feeling of tenseness and excitement felt throughout the whole body as muscular tension. The feeling tone was a decidedly pleasant one. There was a kinaesthetic feeling of being personally absorbed by the image 'of myself making the bet with my cousin,' that constituted the decision."

S. VII. No. 6.

(b). "The idea came, 'I'll ask a policeman for the carfare.' This came first and stayed there. Then came the visual image of a policeman on the corner. He was fat and swinging a club. The thought came in then, 'It's too far to walk,' and here the visual image became richer, more elaborate, and more vivid as the decision formulated. Then it gradually faded, and left a pleasant feeling—one of satisfaction. There was scarcely any tension throughout; it was merely following out the first impulse, and there was no conflict."

S. VII. No. 18.

(b). "The idea of my last illness—an operation for appendicitis—came to me, and I had a visual image of myself after being in bed for a long time, with the wound refusing to heal. Then for a moment came the pain image—the pain in the back that followed—and I remarked myself saying with my lips, 'anything before that again,' and the image went out. The strain relaxed and some slight satisfaction came then, though a slight feeling of disagreeableness still remained."



## S. VIII. No. 9.

(b). "After turning from one to another, my gaze became fixed on the sleeping one,—that on the left. The thought came that it seemed both softer and sweeter. It looked more natural, while the other was more fixed and glassy in stare, without the softness of the sleeping face. A decided feeling of possession and familiarity came at this point with the one decided on, while the other passed completely out of my mind, as if it was not there. There was an agreeable feeling tone throughout, and only a slight degree of tension located in the forehead, and the breathing seemed to be light until after the decision."

## S. III. Series II. Round 3.

"There was a feeling as of familiarity due to the olfactory image (oil of cloves) of the green liquid. This attracted me much more than the purple bottle, to which I appeared indifferent in comparison. There was a definite act of acceptance which seemed to cause me to kinaesthetically turn away from the purple one as if it did not exist, and to go towards the green. The decision was accompanied by a sudden liking for the one and not for the other, which made the one I chose stand out very clearly. Marked satisfaction accompanied the choice."

## S. V. Series II. Round 5.

"There was a feeling of satisfaction in perceiving the two that I knew I liked, and a verbal motor image came with the words, 'These are the two at the top end of the scale,' I was vaguely aware of how they smelled, yet could get no definite olfactory images. I merely fixated the one I liked best and which seemed to have a more pleasing note, and I seemed to say again with verbal motor imagery, 'I'll take that.' The other one seemed to recede from view into the background as if withdrawn spatially, while I fixated the chosen bottle with satisfaction."

## S. VIII. Series II. Round 2.

"On perceiving the red I immediately passed over to the green which I knew I liked better. I could not recall its smell, but remembered its quality in meaning, and that the red was not nearly so good. I also remembered in meaning that I had been disappointed in the red before and that its colour was deceptive. I therefore decided on the green by turning to and fixating it, and then I seemed to lose the red from the

field of attention. I accepted the green with a strong kinaesthetic image as of going over to it. There was a satisfaction in this choice, and I felt that I had chosen well."

*Conflict.* The type of decisions that falls under this head is very different to the preceding in general characteristics. In the antecedent "associative period" there appears to be a marked tendency to pass back and forth many times from one alternative to the other, and the initial trend or impulse to choose one or other is rarely present. The decision comes slowly and with effort, and the fixation of the chosen alternative is uncertain, so that the brightening of the image or the added attraction of the chosen object is not distinctly marked as in the previous forms of choice. The choice may be attended with doubt and a disagreeable feeling tone as opposed to assurance and satisfaction: there may even sometimes occur a tendency to wish afterwards that the other had been chosen. In place of the "non-existence" of the rejected alternative and the tendency to reject it, it often persists in consciousness after the choice. As a result, bodily tension is not immediately relaxed, but may be noted during the after period of introspection. The choice is described as difficult, and the degree of assurance in it is low. Such a type arises from the contemplation of two almost equivalently valued alternatives, but more often where alternatives are disagreeable than where both are pleasant. Occasionally, however, there is found a desire for both, with an inability to choose between them, but such cases are comparatively infrequent. The chief characteristics of Conflict types are the lack of certainty and assurance, the inability to fixate the alternative chosen, and in place of the strong, spontaneous images of moving over to, or eager acceptance, a distinct feeling of effort as of reaching out and taking one, or of reluctantly accepting it. At the same time, such a process is rich with feeling and content which is, as a rule, vivid and persistent. The subject feels that there must be a conflict between his choice and the other alternative, which cannot immediately be decided, but must be left for an actual 'trying-out' process or realization of ends to make the final victory of the choice complete. Such a process of conflict often arises between a strong impulse and a rational or moral motive, with the final determination of the conflict through action, which gradually automatizes it.

## S. I. No. 25.

(b). "I thought, in very clear fashion, 'If the instruction is good that's all we need.' Then I turned my attention to the right. Then came a visual image of a piece of apparatus—I cannot describe its use, but it was particularly bright and vivid in its 'brassy, shiny effect.' With that came a definite feeling such as one has when lost. It was decidedly unpleasant. I then turned my attention to the black object that stood for the instructor—that was the choice. There was a definite movement towards the side on which the decision lay. The apparatus still remained, but dimmer and as in a vague field. I felt myself give a nod at the conclusion—it may have been sensory or imaginal, I could not precisely say which,—it meant, 'I've finished that now and done with it.'"

## S. II. No. 11.

(b). "I reflected that, after all, social customs were a small and petty matter, and that the clothes of a person did not make any difference. The thought came back that I had to decide finally, and with the thought arrived the feeling and image of how comfortable one's ordinary clothes feel. The satisfaction of this was pronounced and then I decided that I would wear these things, for, even though they might be slightly out of place, still it would be better to do that, than to come in evening dress and be conspicuous. I experienced a great feeling of relief at the decision, and yet grave doubt accompanied it. Just then there returned a vivid image of the aristocratic head and face of the hostess, and this seemed to cast a decided doubt as to the real validity of the decision. There was very little satisfaction, and this slight degree came from the thought that the old clothes would be comfortable."

## S. III. No. 3.

(b). "The situation appeared as a real dilemma....the box itself loomed up in the image process in a disproportionate way. I felt myself being occupied more with the candy than with other things. Still no satisfaction came....Then an idea came, 'He's taunting me.'...The box of candy now loomed up visually again. The thought was still strong: 'Such a bet is hardly honorable.' I managed to stifle this with the thought, 'Well, I'll distribute the candy and not take it home.' Then the situation resolved itself and cleared up somewhat. Some feeling of satisfaction came that I had solved a

knotty problem, but the tension seemed to die away and not lose itself at once as before."

S. IV. No. 27.

(b). "I thought in verbal terms, 'What can I do if I do jump in? I may sink with him and both lives may be sacrificed to no end.' Then I said, 'But if I don't?' and then came the thought, 'But how would I feel after the person had been drowned?' It was too horrible to think upon and I seemed kinaesthetically to shrink from it. Probably this was an actual sensation. I could not get away from the thought, which came as a reproach, that I had done nothing to save him. Finally I made up my mind that I would call out for help and then jump in; but I got no real decision. The feeling was one of tension and strain throughout, in the head, chest and round the diaphragm. It was so marked that I felt I must get up and walk to and fro to relieve the strain. The tendency to jump in was strong but so was the feeling of regard for one's life, for I am a poor swimmer. When the decision finally came I felt tense all over, as if preparing to dive in, but with a hopeless feeling of despair. The tension did not pass nor did the feeling of unpleasantness."

S. V. No. 24.

(b). "The two ideas came and seemed perfectly counterbalanced. On the one hand came in verbal motor terms. "Honor thy Father." I didn't want to decide at all, for either side seemed fraught with pain and injustice. Finally with a real effort I reluctantly decided to accept the latter alternative. Then came an image (kinaesthetic) of myself moving slowly towards the side I had decided on, but it seemed as if the slightest effort would turn me back to the other side. There was no relaxation of strain even after the decision, for the two sides still persisted. Even though I had decided on the one hand I kept on thinking of its injustice."

S. VI. No. 1.

(b). "The visual image came of myself driving a small auto with a long yellow body, and I felt its note was full of character. In spite of the feeling of satisfaction there came a feeling as of chiding myself for taking the more conspicuous car, but made up my mind for the car, and decided to face it out with myself in spite of self reproaches. I therefore decided for the yellow auto, but the satisfaction was marred to some extent

by this feeling, leaving itself felt by a slight feeling of displeasure and a slight tension."

S. VII. No. 23.

(b). "The image of myself making an apology was fairly clear and almost obstructed the other. It held the notion that this was the easier way out. Then the words, 'a true statement' came up visually in black and white before me and I felt I could not really apologize. The conflict went on between the feelings of humiliation on the one hand, and facing a 'mob' on the other. It was so tense and the sense of strain so strong, that I wanted to end it. I wanted to take the easy way out, but this seemed too humiliating to my pride, so I determined to face the issue. The real reason that decided me against apologizing was, that this could be construed into an admission of guilt, and I could not endure that. I decided, very slowly and deliberately, 'to face the hostile audience.' The decision was accompanied by a reluctant feeling as of wishing I had taken the other course, but a dogged idea of going through with it prevailed. Tension still remained after my decision was made, but it was some satisfaction to get rid of the nerve racking experience of indecision."

S. VIII. No. 18.

(b). "I thought. 'It's a very hard question to decide,' and felt a strong feeling of strain and dissatisfaction. Then, on second thoughts, came the idea. 'I can't return them if it involves the dismissal of an employee, so I'll give the value to charity and keep them, but when I am next in the store I'll be sure to get that employee and warn her to be more careful in the future.' This seemed a compromise, but even though I had decided on it, I could not get rid of the idea that the owner of the store would be losing the value of the goods. This persisted and prevented me from feeling satisfaction with my decision, though the strain seemed to subside gradually."

S. I. Series. II. Round 3.

"As the curtain fell there was a distinct suspension of movement with a kinaesthetic contraction and set of the features, and an awareness of a tension about the face. In verbal terms came the thought, 'Both are brown.' Then I looked from one to the other, remembering that one of the browns was not so bad as the other, and again, in verbal terms, came the thought, 'Which is the good one?' I decided that the one on the left was probably the one and the final act of my choice was

a final fixation of that bottle, with an awareness of my bodily self as being in line with it. The choice was followed at once by a self-initiated reversal prompted by the thought, 'After all the other bottle may be the good one.' However, I had made my choice, so felt compelled to adhere to it, though the thought that it was the wrong bottle I had chosen, prevented me from feeling that I had chosen well."

S. V. Series. II. Round. 2.

"The thought came in verbal motor terms. 'Here is the one I want to smell.' I felt very curious to know what this brown bottle smelled like as I could not remember it, though there was a feeling of familiarity associated with it. At the same time there was a marked satisfaction in noticing the familiar 'green,' whose odor I knew I liked. I turned from one to the other for what seemed a great many times, and I slowly came to the decision that I would smell the unknown bottle and so gratify my curiosity. At the same time, the notion at the back of the decision was, 'It is taking a risk to give up what is known to be pleasant for what may be very unpleasant.' In spite of this idea which seemed to accompany the decision, I deliberately decided for the unknown brown bottle. I gave up the greenish one with some regret, and I did not feel quite so satisfied as usual with my choice."

*Indifference decisions* contrast with the preceding types in that they show a general absence of feeling tone and content, these exhibiting a marked lack of vividness when present, which makes them appear forced and unreal in tone. Again there is, in the decision period, no fixation of the attention and no spontaneity of acceptance, but a weak sense of effort in choosing unaccompanied by strain or tension. There is no close identification of the self with the alternative, the whole process appearing "extraneous." Often the sense of "outer compulsion"—as opposed to "inner conviction"—is observed by the subject: "The choice must be made; I must hurry." "It is time I came to a conclusion." "This has to be decided so let it be this one." "I must end this so I'll take that," etc. Michotte labels this type "involuntary decisions," but though they approach an involuntary type in some characteristics, there seems to be associated with them—as will later be shown in the reversal period—some slight degree of self assertion in the final act. They are the result of a form of mental inertia

or "paralysis," and do not arise from marked preferences or dislikes but from indifference and lack of similar experiences or inclinations; as a result, their degree of certainty is much lower in the scale than the preceding type.

S. I. No. 7.

(b). "There came a mild feeling of hopelessness meaning, 'I can't decide; they are equally good' . . . . Then I found myself looking back and forth and saying things in foolish terms. 'This has its eyes open, this one has them closed.' There was no tendency in either direction, my attention passed to different details, eyes, posture, hands, and expression of face as alertness and sleep. There came a marked feeling of inability to find any real inclination, but in verbal terms came the words, 'I must choose.' I finally fixed with my eyes the picture on the right, thinking verbally, 'Well, this one.' Then I wondered why I had chosen and if it was because my right hand was close to the other."

S. II. No. 7.

(b). "There appeared a very faint visual image of a cut-glass dish and of some lottery tickets. The notion that accompanied it seemed to be, 'This particular church thinks it all right.' Then I considered the alternative side by thinking of people very young or stupid, to whom getting a ticket meant getting the thing itself, and this was accompanied by faint visual images of such people. Then came in meaning the thought, that it would be right if tickets were sold to statisticians and such people who understood the laws of chance, and this was accompanied by a visual image of a certain statistician. The thought came next, that there would not be enough statisticians to make this plan a success. Then my thoughts returned to the other idea with the notion that, after all, this would be permissible, because people stupid enough to buy a ticket would lose their money in any case, while children would not have the money. If this church gave it its sanction then 'very well.' The decision had to be made with considerable degree of effort, that is to say, there seemed a certain quality of indifference that had to be overcome."

S. III. No. 14.

(b). "My mind wandered and then came back to study the two pictures, and before I knew had passed off again into a day dream. Again I focussed attention on the two pictures. Finally I decided to take the position on the right, and a reason

came up in thought to support it. 'I already have a photograph in the other position so I'll try the new one.' The whole thing was merely an indifferent snap of the judgment rather than a real choice. It was entirely lacking in feeling tone throughout, and seemed devoid of real meaning and warmth to me. The tension came from the fact that I was making an effort to attend."

S. IV. No. 5.

(b). "After some little deliberation I looked out and thought, 'It has been a wet day to-day.' This decided me. There was no real convincing reason behind it, but I just decided upon it haphazardly. There was no strain, the whole affair appearing neutral in tone."

S. V. No. 29.

(b). "The arguments seemed ranged on either side as for a brief. There was strong doubt on either side and the arguments wavered to and fro. Finally I said, 'Well, it will be a continuation of studies.' The final act took the form of a kin-aesthetic image, a going over to the one side as opposed to the other. There was but a slight relief of tension and no final satisfaction or dissatisfaction, merely a neutral state. I had no confidence at all in my decision which felt cold and distant to me."

S. VI. No. 14.

(b). "There was, throughout, a certain distaste for both, associated with a sense of offended modesty. I felt that I had to make a choice, so decided on the lesser of two evils and took the left. The act of choice was that of being forced into having to do it whether I wanted to or not."

S. VII. No. 19.

(b). "Then came a blank, and I had to use effort to bring up any images or ideas. . . . had a visual image of the proverbial overtired sales girl. It came slowly, faded slowly, and was not bright. It had no perceptible feeling tone with it at all. I could not get a step further do what I would. It was greatly annoying to be thus prevented from going on. To end the strain I decided then to return the goods. The decision brought relief since it ended my amazing inability to do what I wanted to do. The real difficulty was not in deciding but in arranging the situation."



## S. VIII. No. 29.

(b). "After reading through a second time I came to the decision that I would seek some money making occupation. None came to my mind however. The decision was a deliberate movement to the alternative that I chose, accompanied by an image of moving towards it to my right hand side. There was no strain or tension at all."

## S. I. Series II. Round 3.

"Clearly in consciousness I realized the weakness of both motives and the failure of either bottle to stand out in intention. In visual terms I seemed to represent the two bottles as two marks, one as chocolate and the other as yellow in colour, the line being represented as vertical. The process appeared to be a sheer intellectual counting of these motives rather than a strong choice well motivated. The whole process was at a low level of tension as if spread out and thin in affective tone."

## S. IV. Series. II. Round 2.

"I tried to recall the smell but failed; my thoughts seemed led away and it required an effort to bring them back to the matter in hand. I was conscious of what I was doing and found it required a very strong effort. I had a voco-motor image of saying, 'You are required to do that,' with an attempt to fixate and compare the two bottles. Though my eyes were fixated,—with which came sensations of strain, yet I could do nothing; no process seemed to take place. I looked at the colour and then thought of the odors, until finally I thought, 'Well, I'll take that one; it looks as if it might smell fairly good,' yet I was uncertain of my decision and felt as if I was trying to force myself to decide on one without a real reason."

The "*Judgments*" also are lacking in any marked emotional or feeling tone, in any sense of effort, or the finality of decision which marks the Preference type. The process is smooth, even, neutral in character, and quite extraneous to the "self." Any personal preference is wont to be suppressed or excluded, the subject deliberately placing himself in the attitude of an impartial judge. Consequently all warmth and enthusiasm is markedly absent. It is as coldly intellectual as a problem in addition. The only tension experienced arises from slight attention strains located frontally, or in the case of S. V. in the throat. Once the subject's arguments have been ranged for the "pros and cons" then an unimpassioned judgment is deliv-

ered. There is no spontaneous kinaesthetic image of acceptance or rejection, but a deliberate tendency to attend to one side or the other; no feelings of possession or identification with the favoured alternative are experienced, but only the deliberate act of attending to, and fixating it, in place of the other. In respect to the final process such types have much in common with the third type of decisions, but in the whole process and vividness of content, they resemble the first, yet are wanting in that personal note that characterizes the Preference types. While they are strongly associative in character they may, as in the present examples, omit any specific reference to the self, bodily or historical, i.e. in regard to kinaesthetic reference or to intimate personal experiences. That is to say, that, in the latter case, while they have definitely been part of the subject's past, they have not been distinctly of that definite character that marks them off from the world as individual, rather than general, they only exist as symbols of thought processes instead of real and vivid purposive experiences.

S. I. No. 21.

(b). "The decision was merely a fixation of the word 'Washington.' Accompanying this was a feeling of uncertainty and dissatisfaction. There was a marked lack of personal feeling here. At first there did not seem anything missing, but on review it was different, it was lacking in a strong personal element—this 'weight' was absent. There was no specific reference to my own experiences, and no definite settling of the self into part of the situation as a recognized part of my life. The whole was quite cold and unemotional the only strain being a slight tension in the head due to inner fixation."

S. II. No. 16.

((b)). "The thought came in meaning. 'The thing to decide is, which is the more popular,—which people do I like best?' Then I asked myself the question, still in meaning, 'What are the criteria of popularity?' I decided that these would be, (a), the hearing of quotations and, (b), the popular taste in regard to their length. I decided from both criteria that 'The Village Blacksmith' was, on the whole, the more popular. In this latter part there was very little imagery and no feeling tone, and the decision came from a rational consideration, I myself did not seem to be personally involved, or to have any purpose in this. Personally it was a matter of indifference, just a case of

saying 'yes' or 'no.' I seemed to 'think' this situation rather than have a part in it."

S. III. No. 16.

(b). "The decision come from inner compulsion rather than on intellectual grounds, yet there was a reluctance to give the vote to Hiawatha; it was as if I were to be asked if 'As You Like It' were better than 'Twelfth Night.' Yet it did not evoke a personal, so much as an intellectual warmth. It was rather like casting one's vote for a candidate than making a decision, since I did not act, but merely judged it."

S. IV. No. 16.

(b). "There came a conflict between my own opinion and that of the majority, that is, between popularity and personal preference. For this reason there seemed an absence of anything like a real decision; I merely had to report what seemed to me would stand as the opinion of most people. Any feeling that came was due to the conflict in suppressing my own preference."

S. V. No. 22.

(b). "I began the work of comparison and placed Washington on the left hand and Smith on the right. I then got the headings tabulated on either side of a definite line from the images. After calling up the images I glanced down the lists on either side, and either was present at a turn of the head. The facts seemed weighted as necessary, e.g. 1, 2, 3. Washington had the greater sum total; it came to about 9, while Smith's total only added to 5. There was a definite notion of these values rather than a definite image of the distinct digits. Then the image passed out, leaving me with some slight degree of satisfaction at having made a neat solution of the problem. All the mental states were indifferent and entirely without feeling tone. There was no effort in myself but merely a cool reasoning process."

S. VI. No. 16.

(b). "Thus the image of Hiawatha persisted kinaesthetically through its rhythm, and visually through these scenes; The Village Blacksmith appeared as a living personality. They alternated in front of me, first one and then the other, till finally I decided on The Village Blacksmith, and the image persisted for a while. This was reinforced by the thought that adults would enjoy this poem more. There was a pleasant feeling

tone throughout with but a slight effort in coming to the decision point. This process seemed less personal and more of an intellectual character than the preceding. It seemed like a pleasant dream as of thinking back over old friends, but the decision came just as a mere deduction."

S. VII. No. 21.

(b). "Then I came back to the first question as to which was the more valuable, and decided on Electric Lighting. There was a slight mental strain at first since the question seemed indefinite and I had to decide the conditions. Once these were settled the rest was easy. The whole process occurred outside myself as it were; I did not appear in the picture. There were no intimate feelings and the satisfaction at having come to a decision was very weak."

S. VIII. No. 28.

"Then an image of a schoolroom came, which persisted and stayed till the decision was formulated. It did not end conclusively since I felt I had no proof. I was satisfied with the decision in that I answered as well as I could, but was not satisfied with its finality. The whole process seemed to be going on outside me without any participation in it at all. There was no pronounced effort to speak of, and only a slight tension in the head at the beginning, which passed as soon as the images began to come."

Though a few extreme cases of the types naturally tend to approach each other, the greater bulk of the introspections establish the characteristic differences as sufficiently and clearly as the selected examples. It is now possible to summarize and examine the groups as a whole, and, by a process of comparison, to indicate the essential distinguishing factors of each type. These occur, first on the associative side, and second, in relation to the immediate factors of decision. The former is not only evident through the material content, but through psychological content as well. Thus, while the first and second types yield a vivid personal material content, in which the present situation is approached through a warm and intimate set of personal experiences, the last pair are wanting in this respect, the only bond being a coldly impersonal and intellectual one. The former appear full of strong emotional disturbance, the latter only arouse the tension due to the process of fixation in attention.

It is in the final process of decision, however, that the differences partly indicated by the "associative" stage seem to come to a head. That they are not due to the pure mechanism of association is evident from the fact that, in the examples used, the fourth type is of the same character and yet is wanting in that warmth and intimacy that accompanies the first and second. On the other hand, the first and second types differ in degree of satisfaction and confidence also; the first is calm and assured, the second is tossed to and fro, and the final degree of assurance is not great. In the third type confidence is almost wanting, while in the judgment type the reaction is of a still different nature. Assurance, in the last named type, arises purely from external associative factors; if the facts are thus and thus, then the deduction follows, and the assurance comes, not from a feeling of self adjustment, but from a knowledge of certain extraneous facts that merely add themselves up under supervision. In such a case, personal opinion or preference is sacrificed to what appears to be that of the majority, but in the case of the preference types, where strong emotion is aroused, the subject is prepared to maintain his preference against all comers. Thus the judgment type is open to the influence of further arguments, pro and con, but the preference type is almost beyond the force of intellectual arguments and reasons; the former is impersonal, the latter of a real and personal character in its finality, its ultimate factor being subjective and ego-centric. Its effect on the object of choice is to enhance its position in the focus of attention—as mere associative factors of themselves cannot—either through the visual or the ideational forms, and to reinforce them with reasons appearing through the conceptual side of thought processes. Obversely, the tendency is to put the rejected alternative out of attention, or to disregard and disparage it, by derogatory "reasons." This selective effect may be summed up in the term, "purposive," which includes, as a necessary condition, the historical past of the individual, while, on the other side, there is a bare reference to some extraneous facts that have no bearing on the past of the individual, so far as it affects his present line of action. While the act of judgment appears complete in itself, on the other hand, a voluntary act of choice is a preliminary to future action, first a tentative trying out, then a decision culminating in a purpose which implies a determination to

follow out the projected course. This purpose is developed into a definite set, which is more or less fixed in character, and which, on the receipt of the proper cue, will tend to consummate itself in action.

The problem then is to explain what may be the factor that is present in the act of decision as the determining agent in purpose, and evidently lacking in the case of judgments. Michotte and Prüm assert it to be "the self" of Ach's "determining tendency;" Wheeler, on the other hand, finds that it may be ultimately reduced to definitisation and localisation which finally passes into a kinaesthetic image. The results of the present work agree with that of Wheeler in asserting that the final act of choice results in a kinaesthetic image resolving into a definite mental set, and signifying "acceptance of the chosen alternative," but cannot sustain his final conclusion that this is a complete and sufficient account of the matter. There still appears one factor unaccounted for, viz. the agency that determines this set, and in this regard this investigation would tend to follow Ach, and account for it by some prime psychological factor such as the "self."

While, on the one hand, it might appear as correct to assert that "the self" takes part in the judgment, as it is to say, that it takes part in a decision, since in both cases the "I" appears to be reported as the agent, at the same time there is a marked difference in reference; in the one case the decision is ego-centric in character, but in the other case, impersonal. The one implies the assertion and accompanying determination, "This is what I, *myself*, will really do," the other, "This is what appears to be really correct in so far as I (or *any one else*) am able to interpret the facts known to me." The difference is brought into relief by successive experiences of decision and judgment, the latter experience tending to elicit a note of surprise from the subject as to its ease and the lack of effort that marked the process. At the same time, the fact of consciousness of self content in relation to a situation does not constitute the essential difference, for it may accompany an act of judgment as when, for instance, one attempts to compare one's person, conduct, or character, with those of another, or, again, as a concomitant of an introspective report. On the one hand, some amount of self reference and self content invariably accompanies a decision, and culminates, as judgments do not appear to do,

in this specific act of self-assertion, implying determination to carry out the projected purpose. The manifestation of the self-assertive tendency has been described and developed by McDougall (11, p. 67 & Chaps. VI. & VII.), and may be regarded as identical with the factor that functions so strongly in Ach's "determining tendency," which, when provoked by lapses, produced the characteristic intensification of resolve through the self-assertive expression of "I can and I will." That this tendency may act as an accentuating factor in attention capable of effecting the change at the decision point, particularly noticeable in the preference types, is postulated by Pillsbury (16 p. 255-256), and is experimentally demonstrated in the work of Morgan (14), who found that interference stimuli increased the degree of concentration of the individual upon his task, and tended to produce better results than when the work proceeded without, though at a greater cost of effort. Gates (6 Chap. IV.), through an investigation of the result of recitation work, as opposed to work learned only for final testing, showed that the recitation of memory tasks was also productive of improved results, some of which are as likely to be derived from the social stimulus of "recitation," as from the factor of intelligently directed "focalisation" of attention. It follows, that the degree of self-assertion that might be expected to be present would be greatest in the case of the preference type, less pronounced where conflict was present, and weakest, or even absent, in the case where the decision was indifferent, or where only a judgment was demanded; the results of the succeeding section will show this to be the case.

(c). *The Reversal Period*

In the case of the after period the thesis put forward to explain the "final moment" of decision may be demonstrated by interference methods. Normally the decision, after being focalised, passes out of the central point of consciousness, but leaves its trace in some form of disposition as a preparatory mental set or readiness to act, the intensity of such a set being dependent upon the intensity of the self-assertive tendency. The proper cue for action will touch it off at once into *realization*,—it has, in this respect, developed into a "determining tendency." If, now, this tendency be interfered with it shows some of the characteristics demonstrated by

Ach. The method used in the present investigation was to ask the subject to reconsider his decision with a possible view to its reversal. Immediately there was set up a conflict between the acceptance of the new task or Aufgabe, and the definite set, the product of the self-assertive tendency, previously developed by the decision. It is evident that there has been brought into the field another factor that, by the way, has also been noted by Ach; this is the nature and degree in which the task has been "accepted" by the subject. In this bare act of acceptance there is a similarity to the process commonly known as suggestion, and both may be accounted for by the operation of McDougall's submissive tendency (pp. 67, ff., Chaps. VI. and VII.) In general, the act of submission is reinforced by the act of self-assertion expressed as, "I will do this task that I have accepted," though the one does not always necessarily imply the other. In the case of Ach's work (2), a newly reinforced self-assertion, caused by a lapse of effort, tended to intensify the "set" induced by the submissive tendency; in the present stage of this investigation, acceptance and previous determination, i.e. the operation of the submissive and the self-assertive tendencies, will be found to stand in opposition to one another.

If the degree of the submissive tendency could be considered in the case of each subject as a constant, the strength of the self-assertive tendency might be measured up against it, as to whether the struggle in its favour is brief, and decided against it, protracted and vacillating, or prompt in yielding. As a matter of fact the strength of submission could hardly be regarded as quite constant throughout. Different types of subjects, different moods of the individual at different sittings, familiarity and consequent mechanisation, tended to produce changes in its force, but, on the whole, the changes were not so great as to invert the relationship at any time, so that, in each case, it may be regarded as a rough individual ratio or coefficient, indicative of the strength of the self-assertive tendency. A detailed study of the after periods of decision types will bring these factors into prominence.

The *preference* type generally appeared to yield similar results to the process of decision. The final result was, in the main, a hearty rejection of the suggestion to reverse the decision, and reaffirmation of the original choice. As soon as



the subject apprehended the contents of the paper demanding reversal, irritation and annoyance were felt, later degenerating into a settled "hopelessness" in regard to the task. The immediate tendency was promptly to reject such a proposition, and to reaffirm the fact that the decision had been arrived at and could not be changed. However, an inhibition of these initial responses and an attempt to conform with the demands of the task followed, though still accompanied by feelings of futility and irritation. Then commenced the struggle previously mentioned, the submissive tendency tending to evoke a striving to recall the rejected alternative, and the self-assertive tendency striving to suppress it. As a result, though the time period was protracted, the subject was able to report but little. If the image returned in a favourable light it only came slowly and by degrees, to be quickly replaced by the favoured alternative, or if it persisted, the result was that a favourable turn to reasons for its acceptance might be developed into some reason derogatory to its acceptance. On the other hand, it often appeared with its disparagements even more intensified than in the main period. The result of such conflict showed its effect in stresses and strains; the mental effort involved being greater in such cases than in the original main period. Most subjects, when asked to represent graphically the result of such effort, gave a representation somewhat like Fig. 4, the original strain being gradually increased in intensity until further effort reached a plateau, when an augmentation of the self-assertive tendency generally resulted

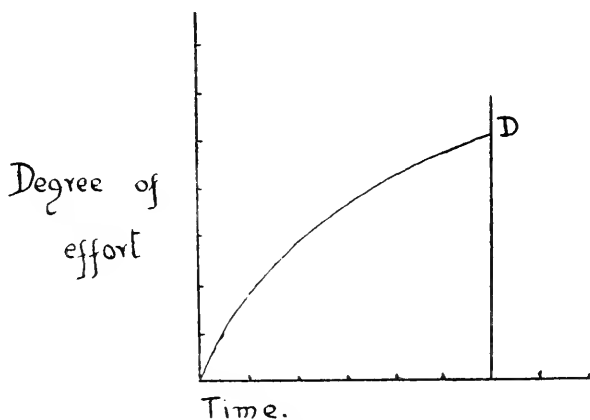


Fig. 4

in a final victory in its favour, the tension being markedly released, satisfaction being enhanced to an even greater degree than before, and assurance being strengthened by this prevailing factor; this result arose from the fact that the subject had "had his own way," i.e., had gratified the self-assertive tendency. At the same time, along with this strengthening of self-assertion, a similar phenomenon of intensification of the alternative, accepted or rejected (according as the preference was negative or positive), occurred as in the main period.

The psychological effect of such a conflict upon the subject was felt to be markedly unpleasant in each case, and the mutually inhibitive result of the temporary deadlock only to be compared to a form of mental paralysis. "Nothing happens," the subject repeatedly reports, "but an expenditure of sheer effort against an impassable barrier," the whole process of mental tension being accompanied by physical strains made evident, even to the experimenter, through external "behaviour" effects of bodily and facial contortions. This experimental phenomenon appears to be representative of the typical conflict productive of psycho-neuroses. If the acceptance of the Aufgabe be expanded in importance to the magnitude of an individual's acceptance of social convention and tabu, and the chosen alternative, with its addition of self-assertion, be magnified into the terms of a consuming desire, there is a possibility of an indefinite prolongation of the conflict, with similar qualitative results. One other symptom noticed among some of the subjects, especially in the earlier stages, was the tendency to avoid conflict by a substitution of certain factors in the original situation so as to comply with the demands of the task. In this action may be traced the method of substitution for reality, which the mental adjustments of certain psychotic types tend to adopt.

S. I. No. 20.

(c). "The first thing noted was again that attitude of hopelessness in making a reversal. There was a period of definite inertness, an absence of any activity. My first impression was, 'I can't reverse this.' This was then followed by a deliberate effort which took the form of opening the cover to re-examine the pictures. The idea at back was, 'It's impossible but I'll try it.' That was followed by repeated alternate fixations of the two pictures, one of them being quite

divested of feeling of any kind—a purely cognitive apprehension, the other having a definite feeling tone to it as being ‘my property.’ This was the same feeling that one gets in connection with the attitude to one’s brother as contrasted to one’s associates. The one is somehow identified as being yours—as part of you, the others do not count. Again I ceased to attend to the other alternative and thus continued fixating my choice with a strong feeling of possession which was pleasurable. The muscles of my face were fixed in the one case, in the other I felt them relaxing as in an incipient smile. I cannot say whether this was sensory or imaged. The decision came back with renewed and even greater confidence than before, and I felt a decided relief in tension and a satisfaction with my choice which I still continued to attend to with the kindly feeling I designated ‘possession.’”

S. II. No. 25.

(c). “Was annoyed to see the experimenter reaching for the paper that signified ‘reversal.’ I marked in inner speech, ‘Oh dear me!’ At the same time I experienced extreme annoyance and irritation. I thought, in meaning, ‘Now I must get my images back.’ I closed my eyes to shut out visual percepts in order to recall them. With a strong effort I recalled the apparatus, which came first as vague objects. It next took on the appearance of chemical apparatus, of test tubes etc. Then there came a very disagreeable feeling tone, as some of the more vague took on the appearance of tarnished brass. At the same time the idea came with this meaning, ‘Apparatus with poor teaching is useless; the essentials are lacking and only the auxiliaries of performance remain.’ There was a general feeling of emptiness in contemplating the apparatus as against the richness and fulness of instruction. There was a final impatient rejection of the ‘apparatus proposition,’ with this inability to decide for it. The decision here took on a kinaesthetic image as of a going back from the non-pleasing alternative, which amounted to a rejection.”

S. III. No. 23.

(c). “Was irritated and annoyed at being asked to reverse this but though I started out to do it I felt the hopelessness of the task. In this situation everything pointed in the one direction; I could not think of any doubts as to what course to pursue. Even the ‘hostile audience’ which was glimpsed

visually for a moment seemed to bring no weakening. I felt I could face the outside world alone. There came an idea of possible martyrdom, the word, 'Spinoza,' came in a motor speech image, and I felt as if I could defy the world. Then the thought came tinged with strong feelings of annoyance and displeasure, 'Apologize, and you lose self respect; you would be worse off than if you opposed the world.' On the other hand came the pleasurable thought that my course would be approved by most people in course of time, so that under no circumstances could I relent, I thought, 'The decision is mine—tenaciously mine,' and I had a notion of embracing it as if with my two arms. Here I felt my hands gripping the arms of the chair. This was the decision. Immediately the emotional tension subsided, the tightness about my chest relaxed and I began to breathe deeply."

S. IV. No. 6.

(c). "It seemed impossible to make the attempt and I felt annoyed at being asked to do what I had already completed. Still I made the attempt to gather a few arguments. I tried to recall all the circumstances. I had to try hard to do this. Again came a visual image of Columbus Circle, at one side was the subway entrance, on the other I looked along Broadway uptown, and slowly came the idea, 'Well, there will be many interesting things to look at as I pass along, and I am fond of looking at shops. I will now have plenty of time to enjoy myself.' This did not sound very convincing, and I quickly returned to the idea of accosting a stranger. I tried to convince myself that this would hurt my dignity. But I felt that this was ridiculous, this accident might happen to anybody and no decent person would mind lending me a nickel for car fare. The idea grew stronger and the visual image of myself asking someone, seemed to come up very bright and clear. Immediately I felt myself again accepting this idea with great satisfaction. I felt even more confident than before that I had chosen the right course. The decision brought relief from all strain and tension, and left me with a relaxed sensation and agreeable feeling. The feeling of the impossibility of reversing was in the background all through and I felt any arguments for it were rationalisations rather than convincing reasons."

## S. V. No. 18.

(c). "First I straightened up in my chair, I felt my face flush and my lips tighten. In verbal motor speech I said, 'I could not change.' I had not expected the paper and it came with a decided degree of unpleasantness since it was so unexpected. There was both disgust at, and indignation with, the task. However, with a great effort, I attempted to recall both images and they came, but very weakly. The former, the rejected alternative, was so distasteful that I refused to consider it. The other returned with a haze in front of it, but had so strong an attractive force that I could not resist it, but I felt as if pulled bodily towards it as by a magnet. I had a kinaesthetic sensation as of moving in its direction. As soon as I had redecided, I felt a glow of joy at not being able to change and a great relief from tension, more especially in the muscles of my throat, as if I had been released from a very disagreeable duty."

## S. VI. No. 10.

(c). "I said in inner speech, 'Don't want to do it this time,' and a strong feeling of displeasure at having to do this came over me. Then came a period in which everything seemed to be a blank. There were images teeming in the background, but I could not bring them into focus. This inhibition seemed to be due to the displeasure, for, when I got rid of it after a strong effort, then I got glimpses of what I was trying to see. First came an intensified image of myself, clear this time, in summer clothes and without a coat. This faded into the background and never came out again very strongly. I then had an image of riding on the subway and the thought, 'I'll get home more quickly than by bus,' and then I forced myself into thinking that there would be six blocks to walk after getting out. I turned next to the bus, which came visually at first and I saw myself shivering on top and felt the cold down my back. This was too unpleasant, and I felt I had to let the former decision have its way. Immediately I did so, relief and satisfaction came back and I felt myself breathing again. I never even regretted having to walk six blocks from the subway in the rain, for I looked on this as slight in comparison with the bus ride. The effort to force down the original decision was very strong; at first I thought I might change, and the strain of effort seemed to move up and down like this,

(Fig. 5) with the weakening of resolution, but the previous decision was too strong to alter."

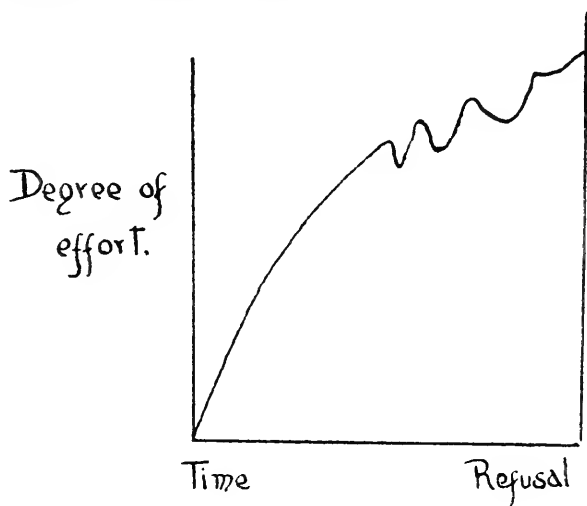


Fig. 5

S. VII. No. 9.

(c). "I thought, 'I don't like the other; I don't want to change.' I felt I had to make the effort. I went back to the one I rejected determined to find some good points in its favour. I thought, 'The child has nice eyes,' but then I noticed the word 'Copyright' across the chest. This annoyed me, and the smile or smirk was even more distasteful. The bow behind the head seemed to push the head forward and I wanted to push it back. I had a kinaesthetic feeling of tightening up my muscles as if about to do it. Then, again, I made a hasty comparison of the points of each, but I felt I disliked the rejected one more than before and my choice seemed even more preferable. I felt that no amount of effort could make me change my decision."

S. VIII. No. 6.

(c). "A 'hurt feeling' came since I felt I must go over again what I had decided on to my satisfaction. This arose every time I attempted to reverse. I started to cast aside the idea of asking someone for the carfare, and summon the image of walking home but I could not do it. I turned back to (b), and thought by trying to forget my original decision I would be able to see the problem over again as when I first saw (b). When I made the attempt, however, the original

decision with its image came up, and kept in the field of attention. I tried to think up the 'crime wave' reasons again but had to dismiss these as ridiculous. It seemed so foolish to walk home when, by the easy method of asking somebody for the carfare, I would be able to ride; it appeared both foolish as well as exceedingly distasteful. So strong did my dislike become that I gladly let it fade away, and then I tried to convince myself by further reasons, but they only appeared ridiculous. I was compelled to allow my previous decision to return, which it did very vividly. Then all the dissatisfaction passed off together with all the tension and restrained breathing. I felt greatly relieved."

S. III. Series II. Round 2.

"At first there was an initial tendency to comply with the request for reversal. But when I came to attempt it, the thought came in verbal terms. 'Nonsense, why should I reverse,' for I knew that I wanted the one on the left. Then again a thought came verbally, 'Why not? I may be able to smell the one I want in the end.' But a reply came again in thought, with the meaning, 'There is no reason to put it off; you have the privilege to choose as you will,' and a strong feeling of masterfulness came with the thought, that as I had the power I was going to use it. The overcoming of the seeming opposition felt very gratifying. Previous to the decision there was strong muscular tension from the waist up; after the decision was arrived at, the tension relaxed but I felt my jaw slightly clenched or set."

S. IV. Series II. Round 2.

"Here again I could not reverse, though I made a strong and persistent effort to do so. At least I could so far as sensory elements go, I knew that the colourless bottle was not so bad, and if there were any incentive to do so, I could readily accept it, but I could find no reason for accepting it. There was no specially strong motive in the object itself to suggest reversal, so I decided to abide by my first choice of which I felt more assured even than before."

S. V. Series II. Round 4.

"I felt annoyed throughout this attempt. I knew I could not reverse even though I tried to force myself to, for I wanted very much to see how it would smell. I had a verbal motor image of saying, 'Perhaps the "brown" that I have chosen is

a disagreeable odor and the green one pleasant,' but I did not feel convinced at all, and it made no difference to my former decision. I then decided not to reverse but to stick to my previous choice. This final decision gave me very great relief from strain and pronounced satisfaction."

*Reversals of the Conflict* type are even more complicated and unpleasant than the preceding. In the previous cases, the subject frankly acknowledged to himself the almost sheer hopelessness of the task but went about it with some showing of effort. In the present examples the subject was not always ready to entertain the prospect of reconsideration, for it appears to involve the recurrence of the whole conflict, with the rejected alternative returning as a disturbing factor, and upsetting a state which might best be described as temporarily static. Thus there was an obvious shrinking from a return of the difficulty of recalling, and then repressing, the impulse that had once been repressed only with effort. As a result, there was a marked tendency to keep it from coming into the field of attention at all and thus receiving consideration, for its potency seemed to be feared by the subject. Accordingly, the mental procedure of a reversal here may appear as fumbling and pointless.

There is, on the one hand, an implicit avoidance of this potent, yet repressed, factor, and, on the other, the knowledge that, if the previously chosen alternative is considered, then only factors that are favourable to its acceptance can be brought into the field of attention. A third alternative, that of distorting the original situation is sometimes adopted here, but rejected after recognition. As a result of the dilemma, the final tendency is to take refuge in reaffirming the original decision and rejecting the task. In this way, the confidence in the reaffirmed decision is enhanced, and the degree of assurance in it rises almost to the level of the original preference choice. With its reaffirmation there is a tendency for the good points of the chosen alternative to be reinforced, an addition in its clearness in attention occurs, and there is also the increase in confidence already noted; or, again, the choice may be negative with the rejection factors reinforced. Such a reconsideration has, in effect, two possibilities. The first is similar to making over the decision a second time with an increased, and stronger victory than before, for the chosen



alternative; an increased measure of self-assertion appears to account for the phenomenon, which is confirmed by an appeal to the subject's ratings. In the second case, where the self-assertive tendency was not strong, but the acceptance of the task was a pronounced feature, the latter becomes the chief factor in the decision, and ensures the acceptance of the previously rejected alternative, but with no great degree of confidence or certainty.

S. I. No. 11.

(c). "A current of resistance at being asked 'to do this kind of thing and vacillate and change my mind,' was at first encountered, but this was inhibited by an effort. There returned fairly readily, a revival of the two representations. The first was a visual and kinaesthetic representation of evening dress, and, while this remained, I found myself at the same time considering my person as it is at present. Then followed a process of reflection in which I thought,—I cannot say in what terms—I could, without discomfort follow the other plan, since I found myself inclined equally in both directions. But when I turned my attention again to the image representing evening dress, the judgment that, under the circumstances described, this was my decision, again returned to me. With that I seemed to pay no attention to my person, which stood for the other alternative, and my affirmation of the former decision was complete. The process was much more difficult than the preceding part, but the images were less vivid in spite of my efforts."

S. II. No. 19.

(c). "Was decidedly displeased at having to go back to a decision so difficult to arrive at. I began with a visual image of where I had left off. It came back fairly readily, in a partly visual and partly kinaesthetic form. I both saw, and experienced, the movement of taking up the goods, putting them in wrappings, taking them off the bed and walking out the door with them. The next part would not come back at first, but at last, very dimly, I saw the store and the girls employed there. At any rate, I thought to myself, I will not have to witness the dismissal of the employee, I will merely put the goods on the desk and say, 'I was given too much goods. My address is on the package. Kindly see to the matter. Good-bye!' so that I would have very little to do with such an unpleasant experience. Then the idea came, 'It is an unwar-

ranted waste of my time.' then, 'That's silly, I'll telephone,' came with inner speech. But I thought immediately, 'I hate the telephone.' I felt even less decided than before. The whole was accompanied by severe strain and was decidedly more unpleasant to arrive at, than even the original decision."

S. III. No. 11.

(c). "It took a long time for the reversal. The greater part of the time was consumed in attempting to reconsider the problem, the inhibitive effect was marked, and my mind persisted in wandering away. I had to exercise great effort—felt kinaesthetically in the back and chest—to bring myself to the point of reconsideration; I had not been quite satisfied with my previous decision, but finally succeeded in recalling and eventually fixating it. I called to mind the rejected alternative as it appeared before, but the phrase seemed to come to my lips in inner speech, 'Oh no, I wouldn't do that,' with strong feelings of displeasure at it. Then I thought, 'Well, I'll turn down the invitation,' but I realised that this was not allowed by the terms of the Aufgabe. I tried again to reconsider the rejected alternative but it was accompanied with such disagreeable qualities that I quickly relinquished it, with the thought, 'I couldn't go and chance being the only one in evening dress.' I therefore went back to my former decision and at once felt a marked relief from tension, but there still stayed behind a slight degree of dissatisfaction with the alternative. The struggle was accompanied with suspension from breathing and a feeling of flushing in the face as well."

S. IV. No. 3.

(c). "The first thing that came was, 'No more reversals.' I had to repress this idea and put forth a special effort. My lips moved and I repeated to myself, 'Endeavour,' with the meaning, 'Get over your mental laziness and make a special effort.' I felt my brow wrinkled and I put my hand to my head. As soon as I made the effort, such a rush of ideas began to come in, that my mind was overwhelmed and the whole faded quite away. I had to make an effort to recall the whole occurrence, which did not come back for some time. I had to again make an effort to recall what it was about. Then the whole picture returned with a rush of feeling. The 'fellow' of the previous part who had been waving his hand, came back as a visual image and was standing beside me. Again he appeared to wave his hand. Then followed a blank. Then I brought back

the idea of betting and finally made a rational decision. 'I could not take a bet with such odds.' Then I set the whole thing aside and refused to consider it. I closed the paper, but I had to repress a feeling of antagonism and the impulse to bet. Right through I had to keep down this impulse to accept the challenge when he seemed to be taunting me, and I was afraid I would yield to him if I let it come into clear consciousness. The whole experience was full of strain and tension, and very unpleasant, and even after making an effort to end the decision, I felt that if I gave it a chance it might return if I considered that side of it."

S. V. No. 24.

(c). "The paper signifying, 'Reverse your decision' made me feel dismayed. I had not wanted to make a final decision before and had decided reluctantly. Now the thought, 'I have decided,' came over me with a strong tendency to affirm it by hitting the table. If I let it, the whole situation would have returned with a rush, and I should have had all the difficulty of deciding over again. I felt I could not bear to face the task, so simply chose to adhere to my former decision. There was no relaxation, and very little satisfaction. I felt more certain than ever that I could not let go my decision, but all the old conflict was lurking in the background ready to occupy the field of consciousness at the slightest provocation. There was no relaxation even after this, only a degree more of confidence."

S. VI. No. 26.

(c). "I did not feel annoyed, but did not care for the idea of change. As soon as I began to reconsider the situation, the greater importance of the thing seemed to loom up and influence my choice. I tried to make up my mind to a reversal, thinking the matter only of slight importance. I felt myself saying, 'slight,' trying to assure myself that the whole affair was of no consequence, and that I could easily reverse my decision, then just at this point the idea that the matter was of great importance, loomed up. If I could keep down this idea, then the idea of a public defence before an audience would have been of no consequence. Again it came up. The conflict was as strong as if I were deciding between two vital matters. I made a strong effort to exclude it, and I felt it as a sensory motor reaction of strong muscular effort and felt myself tighten my muscles all over my body. When, finally I

succeeded in banishing the importance of the situation the former image came up, but I could not accept it now, and felt that I could not fight to accept it; the other effort had taken my strength, so that I could not reverse. There was a distinctly unpleasant feeling tone throughout, which was strong in the exclusion of the importance of the situation. I feel that, even now, all I have to do, is to let it surge up and carry my decision away with it."

S. VII. No. 2.

(c). "The thought of further consideration and reversal of the decision so painfully come at, was displeasing and irritating. The situation returned only after a very strong effort. When it returned only the image favoured by the decision came back and I failed to bring back the other. I said to myself, with inner speech, 'I will get wet; I will get wet,' for I wanted to make this alternative image as disagreeable to myself as possible to force myself to 'go over the ice.' Sometimes the 'getting wet by going through the slush' did return, to be immediately crowded out by myself crossing the ice and slipping. It seemed to be impossible to change the decision without changing the situation, and before I knew I had reformulated it. There seemed to be very little ice, only enough to be dangerous, but then the slush lessened too, and the ice then seemed to be worse than before. Before I could control it, the whole situation became even more nerve racking and dangerous, and the little storm became a heavy one. Then I realised with a start, that I had been distorting the situation and had to recall the original over again. It came with a very fleeting and indistinct image; this persisted in a hazy fashion, and my old decision, that of passing through the slush, returned, but not so clearly as on the former occasion. The notion of risk seemed to be in the background right through, and prevented me from feeling the slightest degree of assurance that would let me accept that alternative, while the getting my feet wet did not seem so dangerous when compared with it. After the decision came, some tension still remained, and though I was glad that I had not changed I did not feel comfortable in regard to it."

S. VII. Series II. Round 3.

"I knew that the odor of the violet bottle was much more pleasant than the brown, but I had been more attracted to the latter in the end though the idea of 'risk' seemed to accompany

it. I felt annoyance at an inhibition of my choice that I had regarded as logically made; still it took an effort to come back to the one I really wanted, for it seemed as if I were forcibly putting by the attractive one, and taking the one I originally chose."

## S. II. Series II. Round 3.

"I felt it possible to reverse by giving up my previous choice, that I was still uncertain about. I had to overcome my mental set by sheer effort. It was not pleasant and took a long time. I had to force my attention to remain on the other alternative, and put the 'fruit juice' bottle out of my mind. I finally came to a reluctant decision to 'reverse.'"

There is little to be noted in regard to the attempted *reversal with "Indifference."* The process is one of indifference because, as in the original decision, the situation is only accepted in an impersonal fashion. Almost exactly the same result is to be found in the succeeding attempts at reversal. The only reason for non-reversal here, is conditioned by the fact, that some slight degree of self-assertion is aroused, and is somewhat stronger than the subject's acceptance of the task, but this measure of increased confidence is not consistently perceptible throughout in its results. The decision once having been made, the subject declines to change, largely from the effect of what he describes as mental inertia, or, perhaps, really from a slightly aroused self-assertive tendency. If this is present at all it does not reach the proportions of the feeling aroused in connection with the two preceding types; the reagent never mentions feelings of "possession," "acceptance," or "attraction" in connection with the chosen alternative here, but merely indicates that this particular one is chosen, not from any motives but from the necessity of having to choose. On the other hand, a common tendency was to allow the influence of the new task to prevail and thus effect a reversal, but the change was not achieved without some slight degree of opposition. The "consciousness of the Aufgabe" appeared to function as an implicit notion that, without any apparent basis for maintaining the original alternative chosen, the reversal ought, under such circumstances, to be made. Where reversals were effected this idea of "oughtness" prevailed over a weak self-assertive tendency.

## S. I. No. 3.

(c). "This part was very vague and weak throughout. It seemed to be merely a review of the whole scheme of directions to left and right without any feeling of pull or alternation. The only other thing that appeared was a feeling of ease or freedom and a sense of relaxation, and, in some way, in verbal terms, was spread the thought, 'Oh all right.' The discussion was a verbal one with no clear representation of the alternatives beyond the bare schema of direction. In the background was a whole mine of meanings. I seemed to review many points for consideration with nothing tangible to represent. I had a notion that I had simply played with the attempt and that time was being consumed, so that I merely acquiesced in the reversal. No feeling tone or bodily tension occurred at all."

## S. II. No. 7.

(c). "On observing the paper that meant 'reversal,' it appeared quite a simple matter. All I had to do was to recall the circumstances and say to myself, with inner speech, 'It doesn't really matter, one might as well hold the lottery as not.' Then came images of a cut glass dish and of people dispersing, which meant that they were going away since they had been told that something was not going to happen. The decision to reverse came very easily and with a minimum amount of effort. The feeling tone was neutral throughout and the matter gave me no concern in any way."

## S. IV. No. 9.

(c). "When the paper was handed out no feelings of annoyance seemed to come at all, there was almost indifference. Then with inner speech I said to myself, 'Suppose I change.' and the thought came, 'If the other was chosen then it is quite as good as this,' but then flashed into my mind in thought an answer, 'Keep the one you have chosen and save the trouble of changing.' I pondered this indistinctly for a while but decided that I could not change as there was no reason to do so. There was no feeling of strain right through, and very little effort. I could readily have reversed my choice as far as the pictures went, but I wanted to be consistent and keep to the choice I had made."

## S. VI. No. 14.

(c). "There was no inclination for either and no strong dislike to considering the reversal but rather a 'bored feeling.'

When I came to reconsider the matter I did not seem able to think up any reasons but just a strong dislike to change. I had tried to make a choice and now could do no more, so that I felt as if I did not want to consider a change in decision; it would cost a slight effort, for which there were no attractions to make it work while, and I did not want to overcome the inertia."

S. VII. No. 20.

(c). "I felt myself sigh as if about to make an effort, but no surprise or annoyance came. There was only a feeling of indifference. I turned to part (a), to make sure that nothing had been omitted. I found that I had overlooked nothing, so turned from one to other of the pictures, and attention passed to the one I had chosen before. It seemed to attract me a little as the face was, perhaps, clearer than the other, which seemed vague, but, on the whole, I remained almost indifferent. I did not try to make a real attempt at reversal but just permitted my former decision to remain. There was no strain, except a slight one of attention in the front of the head, but no feeling came with it; rather a passivity throughout the whole situation."

S. VIII. No. 11.

(c). "I smiled at (c), and felt no annoyance for I thought that perhaps I might be able to reverse this, since my decision was not a very confident one. I returned to the previous page, (b), but nothing came except its meaning, and nothing definite regarding it. My mind just appeared to be a blank, and I thought that I might as well allow my decision to remain for I could find no reasons to change. There was only a slight effort to try to call up something that would help me decide, but there was no response, otherwise the whole decision was just an impersonal thing that did not affect me at all."

S. I. Series II. Round 2.

"Nothing occurred except a relaxing of the face into a satisfied attitude, and a visual fixation of the other bottle. There was no apparent reluctance, and the only other thing present was the idea that neither was known to me.

S. VI. Series II. Round 2.

"I knew I could reverse by focussing my visual attention on the one I wanted to choose, so I attempted to turn to the thick brown bottle. My new determination to accept it was

not strong enough at first, and so I returned to my original choice. I could see its label through the light brown liquid, and this attracted me somewhat, but then I realised in thought, that this was a poor motive. I had always the notion in the background of consciousness, that I must reverse wherever I could to comply with the demand. This idea now came into my mind, with the meaning that, I ought to do it now, so I determined to reverse my decision. I therefore deliberately returned to the dark brown bottle and said to myself, 'I'll accept that.' Personally there was very little reaction; I was indifferent and neutral throughout. I felt definitely out of the decision, and the whole experience was rather like a 'judgment' than a definite decision."

*In Judgments*, as in the case of the Indifference types, the subject finds no serious objections to reversal. The whole matter can be considered readily enough, with a moderately easy recall of the previous images and their accompanying significance of meaning. The procedure is that of a reopened judicial inquiry, where the original verdict can be readily modified in the light of further evidence. Should the subject succeed in adding to the rejected side to a sufficient degree a reversal is possible, but if no further evidence is forthcoming, then the judgment must remain as before. The total absence of tension, emotional tone, and attendant feeling, together with a lack of purposive reference, stamp the reversal as similar in these characters to the original judgment. A judgment, however, differs from the indifferent decision, in that the process may be one of greater interest and more pleasantly toned for the subject; another difference is the readiness with which the subject can, in some instances, bring in additional evidence without any arousal of opposition. The reason for the evenness of the process lies in the absence of the self-assertive tendency, which, as in the original judgment, is also lacking here.

S. I. No. 28.

(c). "I recognised the significance of the Aufgabe and attempted to comply by recalling the unfavoured alternative. A visual image of a church steeple came at once. I was aware that this stood for my former decision and that I must now consider the other possibility. There was no kinaesthetic element involved, such as tension or a settling down to the



task as is usual in attempting reversals. Instead, the image of the school with its grounds came back, and, as I attended to it, it seemed to extend its boundaries. I was conscious, in verbal terms, of the word 'Sunday School.' This apparent widening of the visual image of the school area meant, for me, that school might be taken in a larger sense than that in which I had formerly used it, so that the term 'school' merely meant an illustration of the broader sense one takes education to mean. I was able to reverse my decision quite easily, with the consciousness that I was using an extended connotation of the term."

S. II. No. 16.

(c). "I thought, when I saw the directions for a reversal coming, 'It will not be hard to reverse.' There was no feeling of annoyance, though, for preference, I would rather have proceeded with something new, than have gone over this ground again. It did not seem hard to arrive at a new decision, for I thought other criteria might easily apply here. Indians are always popular with adolescents; these read both 'Hiawatha' and 'The Village Blacksmith.' It is quite possible, or even probable that, since Hiawatha embodies the life of the Indians, it would make the better showing of the two poems. Again, Hiawatha lends itself to display and tableau. The image of the Indian headdress symbolising Hiawatha came with these ideas and remained; there was no effort in its recall. The whole process moved quite smoothly and without tension, and was rational, rather than emotional, in character."

S. III. No. 16.

(c). "The thought came when I saw the paper for 'reversal' handed to me, that I might be able to do it here. Both alternatives seemed to be equally disliked by me. As soon as 'The Village Blacksmith' was represented, however, a rebuttal came; I felt that the former reasons for the 'Hiawatha' choice were valid and unshaken. Then I tried again to bring up the second reason but as soon as it was formulated a rebuttal came. The result was as if the scales always went down on the Hiawatha side and nothing that could be put on the other side could bring them down in turn though I tried very hard. There was not very much strain except in the head, but the whole passed off with a peculiar relaxed feeling that was different to other cases of reconsidering my decision. I felt that, in this case, I was just reaffirming my previous decision

in exactly the same way since there was no evidence for changing it."

S. IV. No. 28.

(c). "The sight of the paper asking me to consider a reversal made me smile. I thought of it as an attempt to shift the decision. 'I might be wrong perhaps,' came the thought, but this did not affect me at all. Even if the majority were against me I would still keep my opinion, for I am very positive on this point. Then came the thought that, perhaps in terms of society as a whole religion is the more important, but I could not agree with this, and felt I had to consider that school was the greater influence. There was no strain and the whole process passed off quietly and without any feeling."

S. V. No. 22.

(c). "Felt no dissatisfaction at having to reconsider. I tried to make the reversal real, and had an image of a lecturer expounding the merits of Smith, as opposed to Washington. I saw myself listening and tabulating the reasons but could get no specific points of any weight. I thought I would, therefore, abide by my former decision. Behind the image of the lecturer was the notion that, if I could hear real arguments in favour of the one side, then I could change my former decision. There was no strong feeling tone for either side. There was no compelling feeling that it *had* to be Washington rather than Smith, and no effort but a cool reasoning process."

S. VI. No. 16.

(c). "There was some feeling of repulsion at the thought of reversal, but the choice was not momentous. If I could find sufficient reasons on the one hand then I could reverse. First the visual image of The Village Blacksmith returned, and the thought that, after all, much repetition might make it insipid. Then Hiawatha came back visually, with the idea that the rhythm and music must live for all time and the images would be forever new and fresh, and, again, that things learned in childhood do persist. If a general consensus of opinion were taken Hiawatha would get the most votes. Aside from the figure of The Village Blacksmith there is little, but, in regard to Hiawatha, its myriad of pictures and the music of its verse make it very appealing; this would tend to make it lasting. The process was one of weighing,—detracting from the one and adding to the other—and then the decision was made. Notice I do not say, 'I made the decision' but that the

decision was made. My work was merely to put in the balancing factors and the whole thing was formulated. No strain or feeling process attended the situation throughout, it was rather calm and pleasant like a daydream."

S. VII. No. 22.

(c). "I realised, in thought, on reading the Aufgabe, that John Smith perhaps had not had a fair chance, and that it would be as well to reconsider the matter. . . . There was no strain present, but I felt myself as in a history class and reciting it, but there was no personal reference beyond this. The whole thing seemed projected in front of me, and I had no part in it but merely supplied the reasons. Except for this I seemed quite passive and simply had to record the decision."

The reversal period may be said to be one of reaffirmation; the chief point to be noted in it is the effect of aroused self-assertion. In the original choice this factor is such a constant, that it passes unnoticed under such terms as kinaesthetic images of acceptance, assurance, rejection etc., or, in the case of Michotte, as that of the "self." The fact that there enters in, at the decision point, something other than the associative factors is shown by undeniable evidence. For, if no other than these are present, then it is hard to see why the attention process should change, why the attitude of the subject should be so different directly after decision in relation to the accepted and rejected alternatives, and, further, if no other factor like "self-assertion" intervened, and the choice is, merely, the product of the task, why there should be such difficulty in even entertaining the idea of a reconsideration of the situation when the task requires it. Where the degree of self-assertion is great, the opposition to a reversal of decision is found to be insurmountable. This has already been qualitatively demonstrated, as has also the fact, that, where it is weak, or absent, a reversal is often achieved. The presence of satisfaction with the choice seems to be one positive index; there is a self-complacency about a well grounded choice that stamps it as winning the self-approval of the subject. This satisfaction is enhanced by an adherence to the original decision after an attempt at reversal. Yet since its influence is not exercised through the addition of content, but rather in the regulation of the intensity of the process, the main effect of self-assertion is to be sought for on the latter side.

Confirmatory evidence is present, in that the recalled images in part (c) do not equal in intensity their originals in part (b), and this may be accounted for by the temporary lessening of the degree of self-assertion by the opposition of the submissive tendency. As a result, there is a temporary dimming of the image, the original brightness of which is subsequently recovered in the process of reaffirmation. Why, then, is self-assertion not obviously present, and reported as present, in the original decision, it may be asked? The reply is obvious. It is always present as an implicit factor in choice just as the acceptance of the task is, and, as the choice under experimental conditions, it is assumed, does not differ from the choice under practical conditions of life, so this element is constantly present throughout, and may pass unnoticed on account of its general universality. Given occasions where it is weak, or absent as in the last two types considered, then the difference is obvious. The process of attempted reversal brings it out in accentuated form and again alters the conditions of its presence, thereby rendering it explicit. Thus, we may, by an application of Mill's "Canons of Concomitance and Variation," bring out its presence by the two means, first of the different types and second by confirming this by a process of variation of its presence in degree or quantity.

#### *d. Motivation*

While presenting situations of various degrees of difficulty, the members of the first series are so assorted in basic motives, as to offer little or no comparative basis for their differentiation in that respect. Their chief value lies in their presentation of different material of an imaginative and reflective character, thus permitting a check-up with the series containing more concrete material, that is finally consummated in action. While an exact tabulation of the first series would be cumbersome on account of their variety, the outstanding motives are worthy of note. One prepotent criterion with all subjects was that of ethical principle. In the case of one individual, this was the final moment that influenced choice, principles of truth and justice outweighing more lenient considerations. Next came the various forms of a "self-assertive" character, such as dignity, pride in one's work, self respect; even personal vanity occurred in some few cases, while desire for social approbation also figured. This type of motive

marked off, as especially "forceful," certain of the situations from others that involved only matters of individual well-being and pleasure, and seemed to add much weight in consideration of the former. One very strong characteristic, in the case of two subjects, that squared well with the experimenter's estimate of their external behaviour, was solicitude for others, both in the circle of the family and society. On a lower plane, of a non-altruistic and a social nature, motives of direct potency were the desire to possess, or "acquisitiveness," and the desire for bodily well-being, comfort, health and safety.

In the second series, the situations are more or less of a uniform nature, of approximately equal difficulty and to be judged by similar criteria; these factors offer possibilities that the heterogeneous character of the former do not. The motives, too, are limited and of a homogeneous type, hence they are comparable. Again, since the forms of choice are all unknown to the subjects before presentation, they provide an illustration of progressive experience and a development of conception of values that must correspond, in some degree, with the acquisition of practical experience and its derived conception of values, that takes place in the world beyond the laboratory. The differences that are manifested therefore do not depend particularly upon past facts of association, but upon qualities such as personal traits and characteristics.

On the presentation of the first round of the series, the subject had no accurate past experience with which to guide his choice. Since the bottles containing the odors were only differentiated in point of colouring, the first tentative principle of choice was that of colour. Degrees of positive colour preferences, as well as past sentimental associations of the colour with other objects, formed the basis of motivation; in some other cases the colour was associated with gustatory images, and a tentative scheme of values borrowed from these preferences.

(N. B. The numbers given in the examples refer to the odors. See Part. II.)

S. I.

"It (No. 7.) seemed like medicine. Only the notion was present and the meaning seemed tied up with the colour of the fluid. The word 'water' came in voco-motor terms, with an attitude of uncertainty, meaning, 'It (No. 3.) looks like water

but is probably not.' With that came a feeling of indifference and a visual image of myself swimming in the water."

S. II.

"The green liquid (No. 7) brought a thought of poison. On the other hand, when I turned my eyes to the other (No. 4), I thought of fruit juice, on account of the colour. This was accompanied by a tickling of the salivary glands and a watering of the mouth."

S. III.

"The colour of the right hand bottle (No. 7) was decidedly disagreeable. It brought back a visual image of medicine; the other (No. 1), though dark, looked decidedly more agreeable. The feeling tone of its colour was much more pleasant than the first."

S. IV.

"The other (No. 2) was so repugnant that I immediately rejected it. Its colour reminded me of blood; there came a slight visual image that seemed so disgusting that I immediately dismissed it. When I came to look at the other (No. 4), I seemed to look at it, not as a liquid, but as a solid. It appeared to change its nature to a piece of dark furniture or beautifully polished stone."

S. V.

"It (No. 8) looked darker, and I thought I'd like to try it; its colour appeared more agreeable. Besides, there came in verbal motor speech, 'cough mixture,' and I had a visual image of a bottle of that liquid that was decidedly pleasant to taste."

S. VI.

"A degree of pleasure came with a notion of familiarity with the green shade of the liquid (No. 5), and I had a visual image of the apothecary in *Romeo and Juliet*, and the ghastly green light of his room. On the other hand, the purple bottle (No. 4) brought a visual image of purple ink, with a strong feeling of displeasure for the implied smell. Then the green brought a visual image of peppermint sticks."

S. VII.

"They (Nos. 4 and 7) called up images of laboratory stains at once and I had visual images of eight saucers together with a kinaesthetic image of putting specimens through these. But I thought, 'These are not stains.' Then my mind shifted to purple ink as I looked at the right hand bottle (No. 4).

The other, the brown, then looked like cough mixture, and this brought a feeling of displeasure, with a slight image of its taste."

### S. VIII.

"As I looked at them their values seemed to come in terms of taste images. The purple (No. 4) looked like dye or ink and the thought of poison came into my mind. Then I looked at the other (No. 8), and it seemed harmless like a tonic or stain for slides. When I thought of 'tonic' an image of a bottle that I had to take as a child, came up visually for a moment.

"I could not get rid of the idea that the stuff (No. 6) was there to taste, and this brought a strong feeling of annoyance."

After this primary period of floundering had passed, and some of the values had been experienced, curiosity became a very potent factor, and persisted till the process of learning was complete. At first, the curiosity was somewhat crude, rather of the nature of inquisitiveness, and arose from a desire to know what the contents of the unexplored bottles were like. Later, it also persisted but from a higher motive—the desire to "learn and fix" the precise value. The subject frequently had a notion that a certain bottle was definitely unpleasant, but desired to identify it again, and give it a precise location in the olfactory scale. This motive was strong enough to predominate over the actual values themselves and, in three cases, by withholding No. 1 (asafoetida) after it had been chosen in preference to another of slightly higher value, it was deliberately chosen in preference to Nos. 4 or 5 (Vanilla and Oil of Cloves). The motive of curiosity was potent until its utility had been eliminated by experience.

### S. I.

"This was followed by the realization that I had seen both but smelled neither. Then came a definite feeling of piqued curiosity with the knowledge that I had chosen the right hand one before (No. 6), but had not been allowed to smell it, while I remembered smelling the green one (No. 4). I was drawn irresistibly to the right hand and, in verbal terms, came the thought, 'I *will* see what it smells like.'

### S. II.

"Both appeared very dark but the right hand one (No. 6) had a sediment round the top. Then came the thought, 'coffee,'

and it interested me very much. I now thought, 'Here is a theory that I wish to test.' As my curiosity grew I felt a strong desire for it and decided on smelling it."

S. III.

"Though I was fascinated by the green (No. 5), the brown (No. 7) looked like an old friend. A warm glow came over me. I felt a strong curiosity and the thought came, 'I must find out what it smells like.'"

S. IV.

"I did not care for the colour of either and, so far as I could remember, I did not like the odor of the right hand one (No. 8). Suddenly the idea came, 'Why not choose the one I don't know about? (No. 6.)'"

S. V.

"I thought I would like to try it (No. 3), in order to satisfy my curiosity."

"I recognised the dark brown (No. 8), and had a definite idea that it was distinctly unpleasant. At the same time, though the other (No. 7) 'looked safe' I thought, I had no definite curiosity to examine it. I had an idea that it was much less unpleasant than the dark brown (No. 8), but chose the latter to learn definitely its value.

"A positive feeling of annoyance at not having been allowed to find out before came over me, (No. 1 had been withheld by E.) and, in verbal motor terms came, 'I'll find out this time if not before, I *will* smell it.' The value of the odor had no significance; I had to satisfy the feeling of curiosity."

In the after period S. reported: "Despite the fact that it had a very disagreeable smell I was glad I chose it and I thought, 'If this were not an experiment the odor would not be so bad.'"

S. VI.

"Had a strong desire to see what was in that bottle (No. 2)."

S. VII.

"I knew that the green bottle (No. 5) was pleasant, but the desire to smell the purple and find out what it was like was so strong that I could not resist, and I had a kinaesthetic image of being attracted bodily to my choice."

S. VIII.

"The red (No. 2) looked very attractive, much more so



than the green (No. 5), but I had been keenly disappointed in judging by colour before, and I strongly wished to smell the green. I accepted the latter with a kinaesthetic sensation of moving bodily towards it, while the red was lost to my attention."

The concept of olfactory values was a matter of gradual development, and formed the final basis of choice in all but one case. This is shown by establishing the correlations obtained by the Pearson formula, in ranking from previous experience after the second and third sittings, with a final adjudication by getting the subject to range the bottles in order of merit for odor alone.

TABLE I.  
EXPERIENCE VALUES CORRELATED WITH FINAL ORDER OF MERIT.

Subject.	2nd Sitting.	3rd Sitting
I	.78	.98
II	.98	1.00
III	.71	.98
IV	.84	.33
V	.88	1.00
VI	.98	1.00
VII	.98	1.00
VIII	.98	1.00
Av.	.89	.91

There is a noticeable sex difference here that is inconclusive, only because of the small numbers of the groups; this is the fact, that the judgments of the women subjects were closer to final values even at the second sitting. So far as these numbers show, the women had a keener sense of olfactory values than the men, and arrived at these much earlier. Where consistency is concerned, the women's judgments agree much better with that of the group than do the men's. S. IV. exhibits a peculiar perversity, in that his final judgments are less in conformity with his sense of olfactory values than his second choice. The explanation lies in a certain degree of prejudice on account of colour and dislike to what had been previously rejected entering in the warping the judgment.

In the earlier attempts to identify the odors the subject endeavoured to recall, by means of an olfactory image, the odor that belonged to the bottle concerned. At first, there was marked inability to do this, but, at the same time, the subject was able to make a judgment by means of what may best be described as bare awareness; here there is no clear consciousness as to reasons, but only a dim perception followed by

strong conviction that one odor is preferable to the other. Later, olfactory images were used to a slight extent, and finally, a recall of relative values rather than a recall of the actual odors themselves. The desire to "play safe" and choose a pleasant odor, where such was recognised, as against an unknown bottle of sinister appearance was, at times, stronger than curiosity itself. The values that were most slowly acquired were those in the middle of the scale, while of those at the extremes, the more disagreeable were not learned so quickly as the more agreeable. Even in the final period there was not always a perfect correlation of choice with order of merit for odor, and these mistakes fall, with the one exception of S. IV, about the middle of the scale. Fig. 6 shows the distribution of these errors according to the misplacing by the subject; *a* shows them at the end of the fourth, and *b* at the end of the sixth round, of the series.

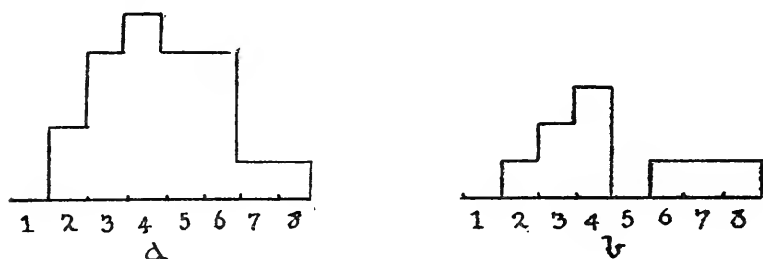


Fig. 6.

Graph showing Collective Distribution of Errors, according to Position in Scale.

### S. I.

"Then I looked from one to the other remembering that one of the browns was not so bad, and in motor-verbal terms came, 'Which is the good one?' I had almost decided on the darker (No. 8) as the good one, and had visually fixated it in order to reassure myself. This was followed at once by a self-initiated reversal. This was prompted by the thought, 'After all the other bottle (No. 7) looks like the good one.'"

### S. II.

"There was temporary fluctuation from one bottle to the other, with the thought in the background, 'Which one do I know?' Then attention and interest were focalised on the white one (No. 3). The thought came, 'It looks "innocent," but last time an innocent looking bottle was very disagree-

able.' A feeling tone transferred from the previous experience to this one, caused me to turn my attention from this with a kinaesthetic image of repulsion from it, and I passed to the bottle on the right (No. 8). Then came the idea, 'This stranger might be even worse,' but not very insistently, for, as I looked, I thought, 'Well, this might be the "vanilla,"' and an agreeable feeling tone spread over me."

S. IV.

"I saw both bottles (Nos. 3 and 5) at a glance, and recognised them quickly in turn with brief, faint olfactory images. I knew that I liked both but I liked the green one (No. 5) better."

S. V.

"I wanted to smell the left hand bottle (No. 7) very much, but I did not know it, and I thought, 'It is more reasonable to choose the pleasant odor that one knows.'"

S. VI.

"I recognised both (Nos. 1 and 7) as bad immediately, though I did not remember their odors at all. But while the yellowish one (No. 7) was neutral, I had a strong feeling of dislike towards the other."

S. VII.

"I tried hard to bring back an olfactory image of each, but could only remember them in thought terms as, disinfectant (No. 7) and drug (No. 2). There was an annoyance at not being able to recall their images, but the notion that the yellow was better than the red (No. 2) guided me."

S. VIII.

"I accepted the green (No. 5) at once, since I knew it was pleasant though I could not bring up an olfactory image of its odor. The brown (No. 8) I knew as definitely unpleasant."

One other motive, that of self-assertion, persisted not only as the confirmatory factor in choice, but, occurring once in this capacity, persisted as a penumbra that affected later decisions. Having rejected a certain bottle once, in some cases there was a tendency to reject it on further occasions, in order "to be consistent with oneself." This occurred, not merely where reversals were asked for, but in a series where nothing like such a "prejudice" could be assumed to be aroused by opposition. Its frequency was not great however, being limited to three subjects and occurring with only one sample

from each. This infrequency would be suspicious if the olfactory values could be recognised, but, as they occurred in the first series of presentations, this cause is impossible. The only other plausible explanation is, that the effect of colour associations persisted, but there is no evidence for this.

S. II.

"Did not know either, but having rejected the yellow (No. 7) before, I felt I had to be consistent here."

S. IV.

"No reasons for the choice came at first since I could not recognise either. Then the thought of previous decisions came to my mind. I had always rejected the brown (No. 8), and the thought came 'I'll reject that now and be consistent.' I had no liking for the purple (No. 4), but had no such objection to that."

S. V.

"Remembered rejecting the red (No. 2) before, but had not experienced the odor of either of them. Then the thought came, 'I'll reject the red and avoid changing my mind.'"

It may be inquired as to what is the function of the self-assertive tendency in decision, if it does not always occur as motive. The role that it plays should be evident from the foregoing. Its part is regulative and confirmatory. If motives are not present, as in the case of the Indifference types, then the tendency is very weak; where the other motives are strong, and the verdict is clear, it confirms and strengthens the choice by enhancing the object through a process of intensification of attention, and adds a complacent glow of satisfaction with the choice, leaving a general tone of self-congratulation. This consistency results in a unity of experience that must go far to lift the conduct that it regulates, above the level of pure association and habit, and provide an active source of resistance against change. In most of these effects it is identical with Ach's "determining tendency."

The process of getting experience divides readily into three characteristic periods. The first of these is exploratory in character, and the type of motivation is chiefly associative or simply inquisitive. While the forms of decision include many Indifference or Conflict types, the second period may be characterised as the learning period, and the motive of curiosity—the desire to fix and allocate the relation value—is an

important factor, for, at this period, "unpleasant" odors, whose definite qualities are unknown, yet whose disagreeable side is realised, may be chosen in place of a known agreeable type. Olfactory images are more frequent here than in any other period. The process of choice consumes much time chiefly on account of prolonged efforts to recall past experiences. The final period approaches that mechanised phase investigated by Barrett (3). Here the values have become static owing to past experiences, and the final criteria of choice, viz. purpose values, which are olfactory in the present case, form the sole consideration. The reaction time at this stage becomes reduced to a minimum, recognition of value coming immediately with identification or perception. Choices of the Conflict type occur less frequently in the final phases, and, the novelty having worn off, the Indifference type sometimes recurs here but not frequently. One noticeable feature is the slightly longer time required for choices where intermediate values in the scale are offered. The investigation was not continued to such lengths as completely to automatise these; this point may be corroborated by a reference to distribution of errors in experience.

#### IV. STATISTICAL ANALYSIS

Proceeding upon the principles of analysis indicated in the previous section, an attempt was made to differentiate the responses and tabulate them under the heads of the types that appeared. Naturally, borderline cases were found that had to be arbitrarily placed under one or other forms, but, in the main, there was only moderate difficulty in assigning them to their places. No response was rejected even in the first series, for it was felt that, under certain circumstances, the subject, under practical conditions, would be compelled to force the issue and arrive at some decision even though it should be an indifferent one.

The distribution of the various types is shown in Table II. In the following, and other tables, each type will be indicated by its capital initial letter.

TABLE II.

FREQUENCY DISTRIBUTION OF THE VARIOUS TYPES IN THE MAIN PERIOD.  
Series I.

Types.	P.	C.	I.	J.	Total.
Av.	15.0	7.25	3.75	4	30
A. D.	3.5	1.7	2.2	—	—
% of each	57.7	27.9	14.4	—	100

Series II.

Av.	34.6	7.3	6.1	—	48
A. D.	3.9	4.5	3.9	—	—
% of each	72.1	15.2	12.7	—	100

While the average percentages of the I types approximate one another in each case, there is a noticeable difference in the P and C types. The truer representation of normal cases would, probably, be that found in the second series rather than in the first since, in the first, the questions were of such a type as to arbitrarily include a possibility of numerous conflicts for the purpose of examination of process. On the other hand, the number of these decisions in the second series would better indicate that this approximates an average sampling in the world of affairs, for this process of decision was carried on only till the automatised stage, such as Barrett investigated, was reached, when decision is formulated as rapidly as the alternatives are realised in perception or thought, and the pro-

cess thus automatised. How far this process may be considered voluntary rather than one of mechanical "habit" can best be shown by a comparison of the times and the distribution of the types of decision according to each round of eight experiences.

Fig. 7 shows the growth of experience and the subsequent lessening of times with increased knowledge of values. In the case of certain subjects there is an increase of the initial times due to the effort to recall certain indistinct criteria from previous experiences, S III being the extreme case in this respect. After the fourth round there is a noteworthy general decrease which becomes still more marked at the sixth, where the final range for all subjects drops down to the limits of from one to two seconds. Here is the point of mechanisation, when all extraneous factors, such as curiosity, are eliminated, and the actual criterion is that of final values for the act in question.

Fig. 8 shows the total distribution of types with each round, thus offering means of comparison as experience develops. The C type is noticeably strong in the initial round owing to the total absence of any criteria beyond those of extraneous association. The I type, too, is fairly strong here, this circumstance probably being due to the new experience. The perceptible rise in the fourth round is hard to account for; a comparison with Fig. 7 shows a marked increase of times at this point. There is a possibility that the task had lost somewhat of its freshness, at the same time it had become perplexing in that the values of the odors were not readily recalled from the appearance of the bottles. The absence of clear and definite criteria would thus account for both protraction of times and the number of the I types found, since at this point each subject tended to make an especial effort to recollect olfactory values, the failure in the attempt to fixate them tending to indifference.

In considering the reversals, it is important to observe whether the numbers of types are similar to those occurring in the process of decision, since it was only in approximately fifty per cent of the cases that it was required of the subjects. Table III shows the comparative frequency of these types in percentage form when reversal was prescribed.

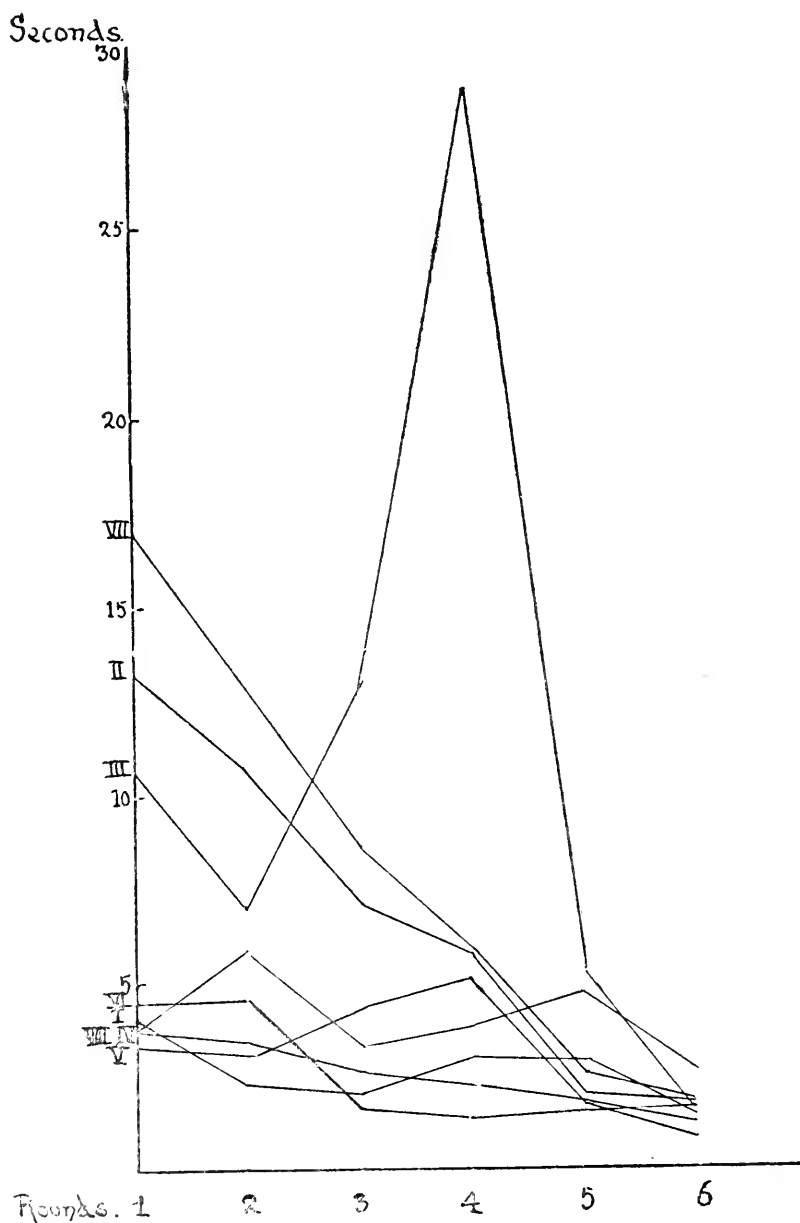


Fig. 7

Average Times for Subject for Each Round of Series II.



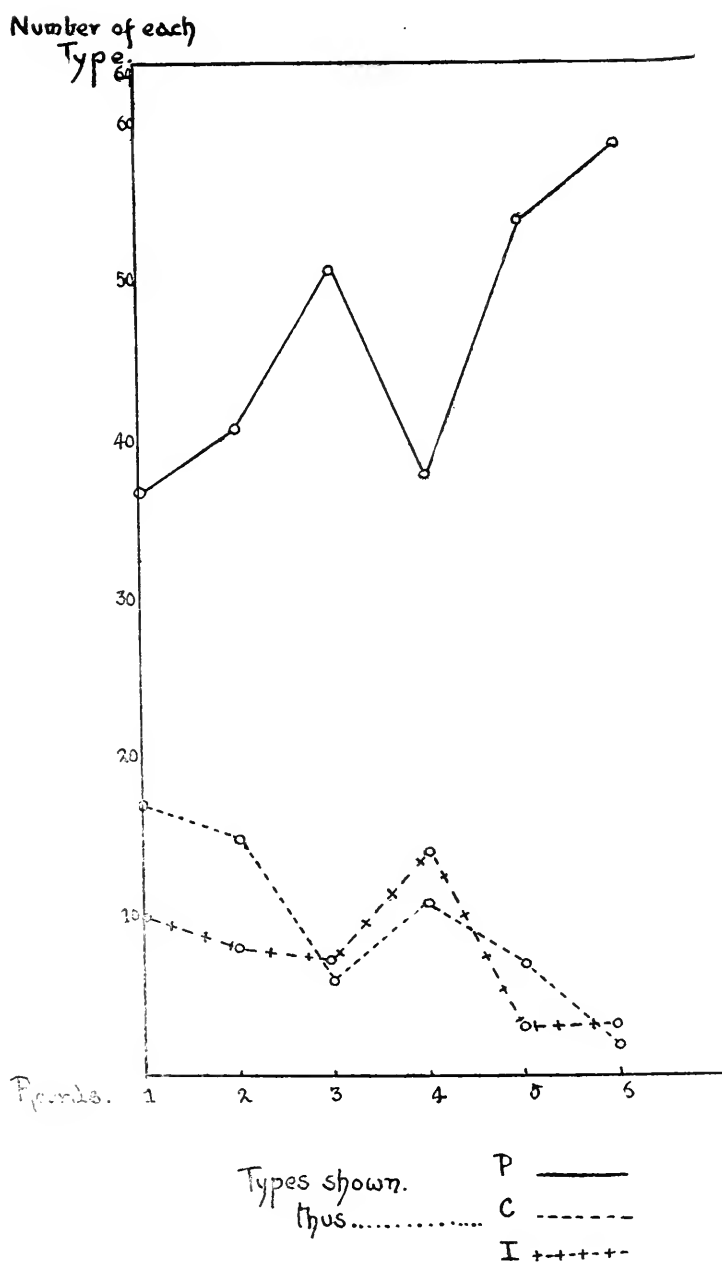


Fig. 8

Graph of Distribution of Types in Each Round of Series II.

TABLE III.

Series I.	P. 52%	C. 33%	I. 15%
Series II.	66.5%	18%	15%

If these results are compared with the percentages of types of the original decisions shown in Table II, the average of the differences of percentage between each corresponding member in each series will be found to be only 4.4 per cent with an A. D. of 2.1, the smallest deviation occurring in the I types. This, in a sampling within the small range of numbers of the examples, would appear to be a safe margin of percentage to allow for a fair estimate as to possibilities of reversal. The actual results of attempts at reversals are shown in Table IV given individually for each series. In each type the term Non-R indicates that the original decision has been reaffirmed, while, in the cases designated R the original decision was reversed and the other alternative accepted. On account of great individual variations complete tables are shown.

TABLE IV.

FREQUENCIES OF REVERSAL OR NON-REVERSAL FOR EACH TYPE.

Series I.		P.		C.		I.		J.		Totals.	
Subjects		Non-R.	R.	Non-R.	R.	Non-R.	R.	Non-R.	R.	Non-R.	R.
I		5	0	3	1	0	3	2	1	10	5
II		2	3	3	3	1	1	1	1	7	8
III		9	0	3	0	1	0	3	0	16	0
IV		5	1	2	1	2	1	3	0	12	3
V		8	0	5	0	0	0	3	0	16	0
VI		7	0	2	3	1	0	1	1	11	4
VII		6	1	3	0	0	2	2	1	11	4
VIII		5	0	4	0	1	2	2	1	12	3
% of each Type.		90.3	9.7	75.8	24.2	40	60	77.3	22.7	77.9	22.1
Series II.											
I		12	2	1	1	1	8	—	—	14	11
II		5	9	1	8	0	2	—	—	6	19
III		17	2	1	2	1	2	—	—	19	6
IV		15	0	6	1	1	2	—	—	22	3
V		20	0	4	0	0	0	—	—	24	0
VI		15	6	0	3	0	2	—	—	15	11
VII		11	1	3	2	0	7	—	—	14	10
VIII		17	1	2	1	0	4	—	—	19	6
% of each Type.		84.2	15.8	50	50	10	90	—	—	66.8	33.2

In each case the noteworthy characteristic is the low comparative percentage of reversals in the P type of decision. Where the evidence is clear and motivation towards one or other alternative decided, then the possibility of reversal appears to be the least. Where the motives are more equally balanced, the possibility of reversal is very much greater in both series, yet not nearly so great as in the I type which presents the most marked tendency in this respect. Though the general trend of results is to increase the possibility of reversal from the P through the C to the I type, one discrepancy between the two results is marked, that is, the increased percentage of reversals in the second series. This may be well explained by the difference of the two forms of situation used. In the former the matter was momentous to the individual, even though hypothesized, rather than actual, and in most cases the individual felt it to be a matter of importance to adhere to the decision. The preponderant motive was often derived from some phase of self-assertion and this original measure of that tendency being ultimately reinforced by the final moment of choice, the result developed into an almost "reversal-proof" type. In the second series the motives were naturally of a simpler nature and of less weight. As a consequence, the strength of the submissive tendency was able to prevail over the motive and its "confirmatory moment" of self-assertion. One other matter is that of the difference between types in the possibility of reversal. This may be regarded as due to the variability of the ratio between the degree of self-assertion and the degree of strength of the submissive tendency in the acceptance of the task. In each case the co-efficient has an individual value and its result is expressed in this direction by the number of reversals achieved.

In considering the times, the fore period of the first series apparently shows no prognostic signs by means of which the type may be forecast; there is no consistent variation in this period by which one experimental type may be distinguished from another as regards duration, not only in the case of the group but more particularly in the case of an individual comparison. Thus, while S. I may show a more prolonged time for the fore period of the P type, S. III and S. IV show exactly the same result for the I type, S. VI and S. VII on the other hand consume the greatest amount of time in the fore periods of the C type. This is more or less in conformity with the

probabilities of the case, for there is no guarantee that the alternatives posited in the main periods will bear any relation as to difficulty with the fore period. The average times of the fore period of the first series are given in Table V while none of course were taken for the second series. The Average Deviations shown are obtained by using the individual averages in each case and not the original single times.

TABLE V.

GENERAL AVERAGES OF TIMES FOR THE FORE PERIOD, SERIES I.

	P.	C.	I.	J.	Av.
Av.	12.90	15.61	11.01	11.86	13.87
A. D.	3.56	5.63	5.58	6.48	3.75

The times of the main period are, on the other hand, distinctly symptomatic in relation to the functions of each type. The individual averages are shown in detail in Table VI, and it is not difficult to see that not only do the general averages agree in relation to the types, but that individual times also bear out this relation. Thus, in each case, taking the general individual averages as a basis of comparison, it will be found that all the P types in both series consistently occupy less time than the averages mentioned, apparently indicating that the decision has been arrived at with a minimum degree of difficulty. On the other hand, the C type exhibits a directly opposite tendency; the times are prolonged by the inability to decide, and the results show a consistently positive tendency for the subject to exceed the average time occupied in his commitment to a final issue. In the case of the I type, no positive tendency in one direction or the other is discernible, the trend being in both positive and negative directions from the average. This again may be explained by the difference between the individual degree of acceptance of the task.

Thus S. II, who exhibited what may be described as "conscientiousness" or sense of duty to a marked degree, shown by the number of reversals achieved, (cf. Table IV) occupied considerably over the average time for the main periods in both series, in achieving these reversals, while S. III, who consistently exhibits a tendency to reaffirm his original decision, from which, together with his introspections, may be deduced a fair degree of self-assertiveness, occupies far less time than his average. Others show a moderate variation in either direction in one series or the other.

TABLE VI.

INDIVIDUAL AND TOTAL TIME AVERAGES FOR THE MAIN PERIOD GIVEN IN SECONDS

Series I. S	P.	C.	I.	J.	Av.
I	17.27	23.64	35.62	18.45	23.32
II	18.41	36.13	43.36	9.85	26.33
III	81.34	113.85	72.00	48.60	94.52
IV	17.17	29.05	20.13	14.10	20.85
V	11.66	20.04	—	16.67	14.56
VI	21.12	86.74	14.40	18.55	38.12
VII	19.62	55.20	53.41	40.88	38.58
VIII	31.62	43.05	21.35	47.72	34.59
Gen. Av.	23.32	50.96	37.18	26.85	36.33

Series II. S	P.	C.	I.	Av.
I	2.14	3.40	3.45	2.71
II	5.66	8.53	11.70	6.37
III	10.03	56.05	9.82	13.82
IV	2.42	9.98	7.35	4.25
V	2.35	6.92	4.50	3.20
VI	2.30	7.80	2.80	2.79
VII	6.06	14.72	7.28	8.16
VIII	2.22	5.72	3.20	2.62
Gen. Av.	4.14	14.14	6.24	5.49

In the Reversal period, the general average times of both series are shown in Table VII.

TABLE VII

INDIVIDUAL AND TOTAL TIME AVERAGES FOR THE REVERSAL PERIOD GIVEN IN SECONDS.

Series I. S	P	C	I	J	Av.
I	29.80	24.13	13.07	25.00	25.69
II	47.52	52.10	28.30	7.45	41.45
III	58.50	86.07	73.20	71.40	66.51
IV	31.42	34.80	18.40	18.93	26.92
V	12.78	14.48	—	9.90	12.89
VI	47.59	78.62	76.60	48.20	56.16
VII	27.93	55.07	27.20	38.73	35.42
VIII	48.93	55.27	33.33	37.30	40.55
Gen. Av.	38.06	53.82	38.58	32.18	38.19

Series II. S	P	C	I	Av.
I	5.13	8.60	4.23	5.08
II	31.88	12.71	23.40	24.30
III	10.68	23.40	5.20	11.59
IV	4.01	5.46	6.03	4.66
V	5.99	7.55	—	6.25
VI	7.47	8.27	3.30	7.24
VII	4.02	6.64	4.34	4.66
VIII	4.01	3.73	3.10	3.82
Gen. Av.	9.15	9.54	7.08	8.45

They exhibit a marked increase over the corresponding averages of the main period. The reason for this increased time is evident when referred to the discussion in the previous section. Here the introspective data pointed first to a marked unwillingness to return to a reconsideration of the alternatives; there was a distinct mental set, or disposition, to be overcome, and then, when the subject had succeeded in this, there was often an inability to reconsider the rejected alternative in anything like a favourable light, more especially in the P and the C types. The greatest difficulty appeared evidently in a reconsideration of the P types, for those are the times that show the greatest average increase, and in most cases, are considerably above the average times. On the other hand, the average times for the I types appear to be approximately equal to the main period times of that type, while the C types show a decrease. With the former the same degree of indifference evidently comes into play, while in the case of the C types one of two things occurs; either the original alternative shows an increase, thus metamorphosing it somewhat into the nature of the P type, or the rejected alternative is newly reinforced by the acceptance of the task set in reversal, thus giving a preponderance to the other side, and making possible a reversal of the decision.

An analysis of the number of subjects showing an average increase or decrease of reversal times over the main period, is given in Table VIII.

TABLE VIII

NUMBER OF SUBJECTS GIVING INCREASE OR DECREASE (-) OF REVERSAL  
TIMES OVER DECISION TIMES.

Series I.	P	C	I	J	Av.
	7	4	3	4	5
-	1	4	4	4	3
Series II.	7	4	3	-	6
-	1	4	4	-	2

In both series there is a uniform prolongation of time in the P type, one subject, S. III being the exception, but it may be observed that his times are abnormally long in the main series. In the C type, increases and decreases are balanced, while the I type appears to have a slight advantage in ease of reversal if judged by the time alone. The analysis of the

increase or decrease in Reversal time is carried out still further in Table IX into R and Non-R decisions.

TABLE IX

GENERAL AVERAGE OF INCREASE OR DECREASE IN REVERSAL TIME OVER MAIN PERIOD TIME.

Series I.					
	P	C	I	J	Av.
Non-R					
Gen. Av.	13.9	8.2	15.0	10.9	10.7
A.D.	7.8	11.2	18.8	26.4	5.4
R					
Gen. Av.	9.2	17.9	-10.4	-1.7	.1
A.D.	4.7	9.5	10.8	14.1	2.7
Series II.					
Non-R					
Gen. Av.	4.9	-.5	1.9		3.9
A.D.	6.2	4.1	6.2		4.7
R					
Gen. Av.	10.1	-3.8	-.2		1.9
A.D.	8.5	8.6	1.4		3.3

As an indication that the attempt was attended with real difficulty it is significant that the Non-R series generally show a positive and greater increase over the reversals. Accepting the time indicator as a significant index of attention, this result seems to point to the fact that the reversal takes place, not so much from the concentration of attention upon the decision, as from the fact that the decision is the factor that determines attention, for the longer period does not result in a change of decision. An examination of the non-reversal series shows that, with only one exception (the C type, Series II), the general tendency was to take a longer time to attempt reversal than to arrive at the original decision. Especially is this the case with the P type which, in both series, stands well above the total averages. The least increases are shown in the C type, but it is to be remembered that, in their case, the original decisions occupied a prolonged period well above the average. Turning to the decisions that were reversed, the P type here shows a consistent tendency to increase the time over the original; in the second series this is particularly noticeable. In the C types the same feature is found in the R series as in the Non-R i.e., that while in Series I this type occupied a far longer time than the original, in Series II the time is far less; the same result is found in degree of difficulty, and may be ascribed to the comparative unimportance of the second series. The I types in both series show a

decrease in time, indicative of the proportionally greater strength of the task over the original decision.

A consideration of the difficulty encountered shows the same trend as the foregoing. In the consideration of both difficulty and confidence expressed numerically, it may be remarked that the rating scale method of treatment is followed, and the significance of the figures in such an application imply merely perceptible degrees of difficulty or confidence, while the final averages can be taken simply to indicate a general trend in one direction or the other. The various average degrees of difficulty in the main period are shown in Table X.

TABLE X

AVERAGES OF DEGREES OF DIFFICULTY FOR EACH TYPE OF DECISION IN EACH SERIES.

## Series I.

	P	C	I	J	Av.
Av.	1.55	2.73	1.99	1.66	1.95
A.D.	.16	.24	.49	.28	.19

## Series II.

	P	C	I	J	Av.
Av.	1.21	2.28	1.65		1.59
A.D.	.14	.20	.45		.28

There is least difficulty encountered in the P type which, in both cases, was well below the general average, while in the C type the highest degree of difficulty was found. On the other hand, the I type approximates the average. This agrees with what was found in the main period in regard to the times, so that the difficulty was evidently associative in character as well as pertaining to the final moment of decision. In the Reversal period of the first series no degree of difficulty was asked for, hence no comparison is possible, but in the second series it was required. The average degrees of difficulty show a fluctuation accordingly as the act of reversal is accomplished or the original choice reaffirmed.

Table XI shows these differences arranged in regard to whether the reversal was effected or not.

Except in the P types the number of cases was not large; the result is fairly large A.D.'s in the C and I types, hence their figures must be regarded as probable rather than final. The apparent contradictory dimensions of the A.D.'s, in comparison with the averages, may be explained by the fact that



TABLE XI

AVERAGE INCREASE OF DEGREE OF DIFFICULTY FOR EACH TYPE IN SERIES II.

Series II.	P	C	I	Av.
Non-R. Av.	.75	-.13	-1.00	.45
A.D.	.43	.34	1.00	.23
R. Av.	1.42	-.50	.05	.28
A.D.	.40	.63	.41	.37

the numbers run from minus quantities below zero to positive quantities above zero. Considering each in order, the P type was found much more difficult in attempted reversals than any other, the degree of difficulty greatly exceeding the average in both cases. The reversals were evidently much harder of accomplishment for the subject than were the reaffirmations, for where the reasons of choice were well grounded the effort to reject and replace them would naturally be great, the effort to reconsider would be difficult, and the final reaffirmation would naturally come much more easily than a reversal of decision. In the C types of the second series reconsideration was not quite so difficult as in the first, especially in reversal. The struggle between motives may have been lessened in their case by a reconsideration, the C decision then passing into the nature of a P type or, on the other hand, the previously rejected motive was considerably strengthened by the demand of the task that it be accepted. While it was easier to reaffirm the original decision in the I types, the reversal experience was only about equally as difficult to accomplish as the original decision.

One further measure remains, that of confidence, that is to say the degree of assurance that the subject experienced in connection with his response after having come to his decision. In the first series, the original decision was rated in terms of confidence, but in the after period, in terms of, "possibility of reversal." As far as the experimenter was able to judge, however, the subjects accepted the latter in such a way that it actually stood for confidence in the second decision. The results of the main period are included in Table XII and show only slight variations between the two series.

In each case the general tendency is for confidence to decrease throughout each type of decision. In the P type the

TABLE XII

GENERAL AVERAGE DEGREE OF CONFIDENCE OF THE MAIN PERIOD FOR EACH TYPE OF EACH SERIES.

Series I.					
	P.	C.	I.	J.	Av.
Gen. Av.	3.71	2.45	1.98	3.22	3.12
A. D.	.25	.31	.19	.61	.36
Series II.					
	P.	C.	I.		Av.
Gen. Av.	3.88	2.84	1.89		3.45
A. D.	.09	.21	.23		.22

confidence is strong, approaching in the average far towards a degree of perfect confidence expressed by the number 4.00; the C type fall between a state of being "confident" to a "fairly confident" condition, while, in the I type the range is from "barely confident" to "confident." In the first series this trend is the case with all the subjects with two exceptions, S. III and S. IV whose degree of confidence in the I type is slightly in excess (.11 and .18) respectively of the C type. In the second series, there are no exceptions to type at all, but the average records of all subjects in all cases follow this general trend.

In the treatment of the reversal period the result may best be represented as in the case of degree of difficulty, classified according to increase or decrease in rating on the main period and whether reversed or not. The average group results are shown in Table XIII.

TABLE XIII.

SHOWING GENERAL AVERAGE OF DEGREES OF CONFIDENCE FOR THE REVERSAL PERIOD FOR BOTH SERIES.

Series I.					
	P.	C.	I.	J.	Av.
Non-R. Av.	.28	1.03	.60	.22	.56
A. D.	.19	.16	.33	.14	.27
R. Av.	-1.10	-.21	-.06	-.40	-.67
A. D.	.55	.47	.05	.24	.41
Series II.					
	P.	C.	I.		Av.
Non-R. Av.	.04	1.12	2.00		.23
A. D.	.02	.31	.00		.18
R. Av.	-.65	-.31	.04		-.32
A. D.	.36	.14	.15		.46

Entirely different results appear where the decision was reaffirmed to when it was reversed, and these resemble the findings when the matter of difficulty was discussed. In all cases of non-reversal an enhanced degree of confidence is found, less so in the P type where confidence is already extremely high, but in cases where the confidence is less marked as with the C type, then a reaffirmation results in a greatly increased degree of confidence, strengthening the weaker assurance in this case and bringing it up almost as high as the original confidence of the P type. In the I type, the confidence is also greatly enhanced by reaffirmation, very markedly in the three cases of the second series; the self-assertive tendency evidently took the place of original motive to some extent, or, as sometimes happened, some further motivation developed after the original decision.

If the case where reversals take place be now considered the opposite results are found, a diminution taking the place of an increase of confidence. The greatest decrease is found in the P type. A successful effort to reverse a clearly defined choice appears to be not only exceedingly difficult, but inimical to confidence as well. In the C type the decrease is not so marked but is at least present, while again the I type suffers scarcely any change, the first series of such being slightly negative and the second positive, but the whole range not exceeding from two to three per cent in either direction from the average.

Using the main period as a basis the statistical results of the main and reversal periods may be comparatively summarised in brief tabular form.

In general it will be observed that the P type are principally affected by reversal, and the C type by reaffirmation; the former loses in the essentials of a strong and well formulated decision by change, the latter tends to gain by its own reaffirmation; the changes in the I type are negligible except for the increased confidence in non-reversal. A possible cause of the last effect may be due to the strength of the submissive tendency, which now takes on an opposing direction and provokes the self-assertive tendency by its very opposition. Thus, where a contradictory task is strongly combated and rejected, the result tends to strengthen the original self-assertion or determining tendency. Where, on the other hand, its direction is accepted in opposition to the individual's

TABLE XIV.

SHOWING MAIN CHARACTERISTICS OF TYPES IN THE MAIN AND REVERSAL PERIODS.

## Decision or Main Period.

Type	Frequency	Time	Difficulty	Confidence
P.	Prevailing type	Short	Slight	High
C.	Infrequent	Protracted	Very Pronounced	Moderate
I.	Infrequent	Average	Average	Fairly Low

## Non-Reversal

P.	Frequent	Increased	Increased	Slightly Increased
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C.	Evenly Distributed	Unchanged	Unchanged	Greatly Increased
I.	Infrequent	Increased	Decreased	Increased

## Reversal

P.	Rare	Increased	Greatly Increased	Greatly Decreased
C.	Evenly Distributed	Unchanged	Slightly Decreased	Slightly Decreased
I.	Frequent	Slightly Decreased	Unchanged	Unchanged

decision, then its effect is to weaken the strength of decision. In this respect the general findings of the quantitative data bear out the findings of the qualitative analysis of the introspective results.

One final treatment still remains; it concerns the statistical data of judgments. A reference to the tables shows that throughout, these types reach a very close approximation to the general averages. The number of judgments used in this investigation was limited, being only four per subject, and was confined to the first series, so that, while useful as a qualitative check, their paucity does not warrant more than a passing statistical comment. So far as their results suggest anything, they seem to indicate that judgments are similar in general nature to decisions, with a possibility of the occurrence among them of similar types. On this basis they may be regarded as general types, while the decisions themselves are specific and personal solutions of definite situations. Before a final pronouncement could be made, however, a more extended investigation than the present is essential.

## V. DISCUSSION OF RESULTS

It is possible at this stage to gather the findings of the various parts of this investigation, and to compare them with the results of other investigators: the experimental process of choice may be said to begin with the acceptance of the task or Aufgabe in the fore-period. This gives a directing trend to certain associative processes, and develops a general set in the direction of the possible alternatives that may offer themselves. In this regard the process of the fore period may be looked upon as providing a general background for the problem.

In the main period there is a more detailed process of exploration. Here the individual specifically tests the effects of each process by momentarily experiencing first one and then the other of the possible alternatives, by treating them as ideational experiences. If the first attempts are unproductive, the process is continued until something like an evaluation of the motives is arrived at and a comparative weighting is arranged in relation to final purpose. The process at this stage is dependent on past experience either germane to, or bearing directly upon, the situation. This may be termed the associative period. With the completion of this process there is a tendency to accept, deliberately, the alternative regarded as of greater worth by the subject. This acceptance, in contradistinction to the act of judgment, is not merely acquiescent, but active and real, and accompanied by an implied determination of purpose to fulfil the choice in action.

The whole of these processes of tentative trying-out are accompanied by kinaesthetic and organic processes—bodily stresses and strains, which tend to be suspended at the moment of acceptance and to cease with the actual decision. The final course of this motor disturbance ends, not in a complete relaxation, but in a definite kinaesthetic set of preparedness, that Washburn (23, p. 161) has designated in motor terms as a “system of static innervation,” its psychological counterpart being a type of “determining tendency.” Shifts of attention accompany the tentative acceptances of the alternatives and the final and decisive acceptance of one is attended by its fixation in the focal point of attention.

So far as this description has proceeded it is corroborative of the work of Michotte and Prüm, and of Wheeler, and is only differentiated in the direction of material, the factors concerned in the involved processes being essentially the same. So far as the findings of Wheeler are concerned it differs from them in regard to the cause effecting this final motor set. For him it appears to be associative, working through the mechanical forms of "definitisation, delay, and reinforcement" (24). The present investigation would however, attribute this result to some regulative cause which, for lack of any better or more descriptive term in English, has been designated—following McDougall,—the "self-assertive tendency" and which adds the significance of Ach's phrase, "I really will," to the project. Thus the final act of choice may be said to take on its final significance of a self-determining tendency. There is a subsequent effect of self complacency that tends to mark this process, reported as, "I felt very pleased with my choice," that may be interpreted as a result of this, to-be-gratified tendency.

On the other hand, the "self-consciousness" of Michotte and Prüm is sustained in its reference, upon either content, function, or both. This self consciousness may be conceived of as a regulative tendency as previously described, accompanied by self content. It was shown that self reference was not restricted to content of the process of choice but might be found in certain cases in judgments also, and could not therefore alone be considered as characteristic of the act of decision. The results in this respect agree with Titchener's summing up of the manifestation of the self (21, p. 320): "It need not appear in many of the situations that are designated by self words. . . . It is the specific expression of a special determination." In this respect its function in the final act of choice is to direct the process at its consummation and carry it over in the form of a definite mental set with a physiological counterpart. Since the arrival at a decision results in a bodily relaxation, the set is probably cortical in character, such as described by Hunter (8), in the higher forms of delayed reaction.

There remains the possibility that this self reference may be analysed further, as Wheeler (24) alleges, into a certain group of elementary and imaginal experiences. That such is the case with the content side can be readily agreed upon;

the imaginative side of purpose, it was found, could be paralleled on the sensory side by organic and kinaesthetic sensations. In so far, however, as the question is one of process or the operation of law, it is impossible to do so. Thus, the chemical composition of sugar may be reduced to the three common elements, carbon, hydrogen and oxygen. But the contiguous presence of these elements even in their necessary proportions does not, on the other hand, constitute "sugar." The substance is something more than an assembling of the three elements; it may be looked upon as a manifestation of a certain process in operation upon these according to the law of such a process. No possible amount of analysis could reduce the process itself to elements. The moral is obvious; while the self content may be reduced to simple imaginal and sensory elements, the vital part of it, that which is really characteristic of the self factor, viz. the self-assertive tendency, cannot be so reduced, but remains unanalysable, an irreducible active principle that combines these elements into a self entity.

When an examination of the various examples was made, it was found that, while the majority of decisions conformed to this particular form, viz. the P or Preference type, there were others that differed in certain respects. Thus in the case of the C types the final decision factor was not so strong as in the case of the former. The same degree of assurance was lacking, and the one alternative was not generally focalised through definitisation and reinforcement. The tendency was for the rejected alternative to persist in a less definite degree than the accepted one, but yet to such an extent as to prevent the whole-hearted acceptance of the latter by the subject. In the case of the third, or I type, there appears to be lacking even an associative basis of self reference, and all that is present is the bare minimum activity of the self-assertive principle. The last have been classed by Michotte and Prüm (1) as "non-voluntary" activities, and result from the bare acceptance of the task in the command to choose. That they are altogether non-voluntary is doubtful however, since there is no further evidence to be considered. The one type that has not been examined in the present investigation is the purely mechanised form, where the relative values have been predetermined, and only the mechanised reaction of decision remains without an actual

weighing of motives. This has been regarded as an habitual, rather than a voluntary activity, and is generally so accepted.

The question that may now be asked is, "How do these experimental types compare with the classification of other writers, more particularly James, since his categories are the most widely inclusive?" The P type may be identified with his "rational" type, and with the predominant type of Calkins and Stout. The designation, "rational" would be better reserved for judgments; the term "preference" as used here appears more truly descriptive of the typical decision process, which is frankly personal, and sometimes, as some of the examples show, almost irrational in tendency. On the other hand the decision with "sense of effort" has much in common with the C type. The conflict here is however, not really ended but persists, as Calkins asserts, in a less intense form. It occurs in practical life, often as the result of motives arising from the self regarding sentiment coming to an issue with those that have to do with the individual's more material welfare, but, so far as this work shows, they are not necessarily confined to these situations, that is to say, the type transcends a mere ethical differentiation of motives, and may be found at any moral levels of conduct; in this respect the C type may be admitted as genuinely psychological. For these reasons, a differentiation between those decisions that include "a moral factor" and those that do not, cannot be regarded as justifiable, and further, such a category violates the logical principles of classification since this type cannot be regarded as exclusive of others, but tends to fall under the heads of Preference or of Conflict. James' second and third classes, where the decision "is given without due deliberation," and where the subject "wearies of the conflict," would probably fall under the I type, unless in the latter case some of them might be included under the head of C. If the subject's experiences are not sufficient to form a basis of experience for the functioning of associative processes, then the result is purely an indifferent one. In the case of the second type, if the subject is not predisposed to either alternative even though his experiences may include both, the decision is unaccompanied by bodily stresses and strains and must be classified as being under the I type. On the other hand, even though the conflict may persist, the subject really makes a deliberate choice; he is well aware that the chosen alternative is his only



reasonable course, and that, though an impulsion towards the acceptance of the rejected alternative may persist, and in an unguarded moment may be followed, it is inconsistent with all his past experiences and his self-assertive tendency in general. Further experiences in such a case tend to render the type a closer approach to the P form.

The relative degrees of strength shown by the self-assertive tendency in these forms is evident when the subject is required to consider a reversal of his choice. Not only is there a change in regard to the difficulty of the task, but there is also a change in the degree of confidence. This is due to the *Aufgabe*, or urge of "oughtness"—originally neutral in regard to the chosen alternative—becoming an active factor working in opposition to the self-assertive tendency or principle of "subjective willingness." The effect on the latter when an attempt to oppose it is made, results in an emotional expression of mild forms of anger experienced as "irritation and annoyance." The result of the new conflict thus aroused depends on the relation between the degree of submission to the task or *Aufgabe*, and the strength of the self-assertive principle. Where the latter is strong, as in the case of the P and C types, the result is a rejection of the new task and a victory for the self. Where, as is generally the case in regard to the I types this relation is reversed, the tendency is towards an acceptance of the *Aufgabe*, and a reversed decision ensues; this is not always the case however, for even the minimum functioning of the self-assertive tendency proved to be too strong in some cases for the reversal to take place.

We may regard the imposition of the *Aufgabe* on the one hand as a manifestation of the submissive tendency—the acceptance of direction from without; it embodies an implicit, "I must comply," a tendency of duty or oughtness. On the other hand the self-assertive tendency carries with it an assertion of determination, or, in the terms of Ach, an "I-really-will" significance. In the first part the subject's acceptance of the task reinforced the determining tendency, submissive acceptance thus supplementing self-assertion at the same point. In the reversal period the two are opposed; the new *Aufgabe* requiring a change in choice, and the still active determining tendency opposing it. Where the choice is vigorous as in the P type, the regulative force of self-assertion is very much

stronger than the tendency to submit, to accept the dictation from outside, and opposition only arouses it more intensely. Where the choice is weak, then the acceptance of the Aufgabe, the operation of the submissive tendency, is relatively the stronger, and the sense of duty overcomes the inclination of the choice.

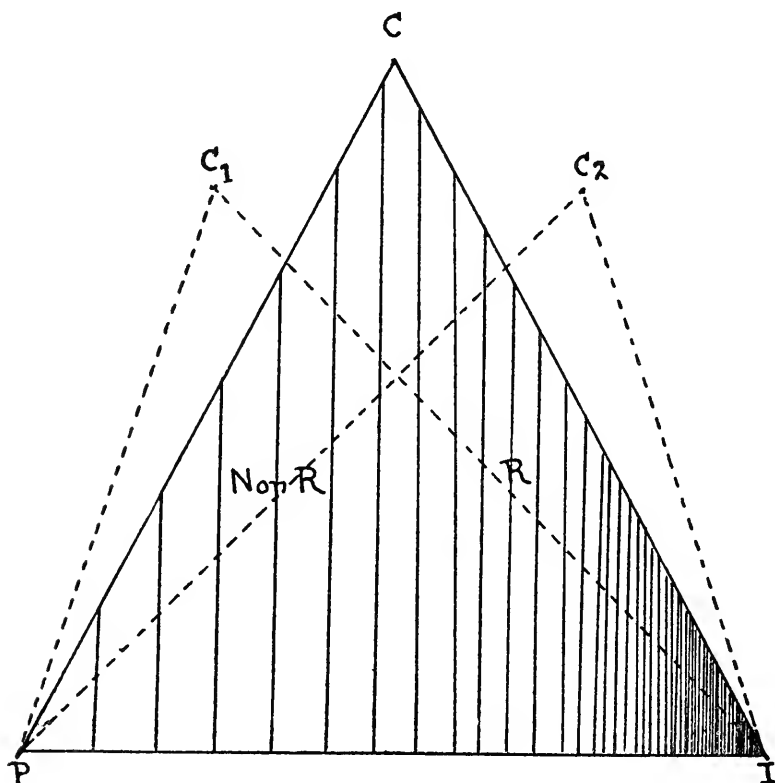


Fig. 9

The relations between the various types and the tendency to merge into opposed forms may be observed in the diagram shown in Fig. 9. Here the three types may be represented in their pure or ideal form by the various angles of the triangle. Where the associative elements are weak, either through lack of the dispositional forces or experience on the part of the subject, these types will fall along the lines, P I and C I. Where they are particularly rich and complex they will tend to fall schematically along the line P C. The line C I would correspond in richness of association with the line P I, with the

angle I marking the zero point. The degree of self-assertive quality would tend to predominate at P with a lessening activity towards the point I. The maximum of possibility of reversal is shown at I in the region of darkest shading. This possibility tends to pass off as the movement is towards P. When the point reaches towards C the chances are evidently somewhere between those of P and I according to other possibilities of the function of the experience and the self-assertive tendency. Given therefore the relative strength of the associative tendency aroused in a decision process, its location between the point I and the line, P C, might be found as a line P' C' parallel to P C.

On the other hand the degree of difficulty may be regarded as the relative approach to equality between the evaluations of the alternatives of choice, reaching a maximum point at C and lessening towards the points P and I. A line P' I' between C and the base P I and parallel to the latter will then be the location of the degree of difficulty. The point of intersection between the line of associative strength, P' C' and the line denoting degree of difficulty P' I' would locate the relation of the decision point to the three types. By dropping a perpendicular to the base line P I, and noting its relative position between the points P and I, the point so found would correspond to the degree of confidence in the decision. If, however, the degree of confidence was found, as in the present investigation, the process might be reversed, and the strength of associative difficulty deduced from the intersection of the perpendicular marking confidence and the parallel line marking difficulty. An appeal to introspective evidence, since no quantitative data were collected in this regard from subjects, tends to confirm the genuineness of this relation.

The relation of the point C to the ends of the base P and I is not fixed equidistantly from each as represented, but its position tends to vary with the individual subject. Where the degree of self-assertive tendency is high C would tend to move towards I, but where it is low the tendency would be for it to move towards the end P, the confident subject tending to reduce the C and I types to a minimum, while these are greatest in number among the less self-assertive types. The number of reversals also corresponds with this trend. Outside the triangle beyond P, would fall all those experiences which have become mechanised in the form of habit, while

in the corresponding position beyond I would fall all those where lack of experience, or individual trend of disposition placed them beyond the possibility of even the semblance of a decision process.

The whole trend of this investigation has been in the direction of removing the emphasis that is usually placed upon primary motives and putting it upon the "actual moment" of decision, viz. the self-assertive tendency. Through the activity of this principle it is possible, even when two favourable alternatives are considered, to choose one completely and fully and to totally exclude the other. If this process of choosing were merely one of competition of alternatives as motives, then the Conflict type with its lack of finality, rather than the Preference type, should predominate, since the subject is initially inclined to both sides. This is not the case however, the Preference type is the predominant and characteristic type, and the final set effected by such a decision leaves but the one alternative clear and distinct, with the other withdrawn from the central field of attention. By the operation of the added factor of self-assertion in a perfect type of decision, the original motive is thus lifted out of the level of competition, and stands alone and focalised as the one purpose of consciousness, and is further maintained there against opposition. Hence, the concern of decision is not with native tendencies, *per se*, but rather their direction and regulation through the work of the self-assertive tendency.

Further there are some significant implications that follow from the conflict that ensues when the self-assertive tendency is brought into opposition with the submissive tendency in the new task. Having made a choice, and called up in support of it the self-assertive tendency, the subject is then asked to change; the endeavour to subdue the original self-assertive tendency and the acceptance of the new alternative constituting the conflict. These implications affect various branches of psychology: primarily an application may be made to the field of psychiatry. Up to the present, reports of such phenomena are confined to individual case reports alone. The subjects furnishing such reports are, from the pathological nature of their condition, more or less suggestible, and totally unacquainted with the nature of psychological processes, and further, their abnormal condition would also tend to affect the veracity of the report. By utilizing and developing such

a form of investigation as indicated here and bringing it under laboratory conditions, such phenomena may be reduced to exact experimental forms, and directly utilise the reports of skilled psychologists. The attainment of both qualitative and quantitative results of importance should follow, and "academic" psychologists would be in a position to offer direct help to the psychiatrist, just as the biologist does to the general practitioner of medicine through the field of bacteriology. Again, in regard to educational and moral training two important principles emerge; these are, (a), that the normal method of procedure should be to endeavour first, to induce the subject to accept the task and then to will it as his own single purpose, (b), after arousing the self-assertive tendency in a given direction not to attempt to interfere by imposing a directly contrary task. The former principle of harmonization of duty and purpose also substantiates psychologically what is ethically postulated as "inner freedom." Finally, the whole of the foregoing has a direct bearing on the laws of mental hygiene.

## VI. SUMMARY

- (1). The process of choice invariably involves a self reference in its purpose; such is not apparent in the case of judgments.
- (2). The final factor in decision is the self-assertive principle, the latter being regulative rather than contributing to content.
- (3). Three differentiated types of decision are apparent, viz. the Preference, the Conflict, and the Indifference type, the first named being characteristic and most numerous.
- (4). The Preference type proceeds smoothly, implies a rich subjective experience and is finally accompanied by a large measure of the self-assertive tendency.
- (5). The Conflict type, vacillating in its character, also implies a rich fund of associations, but appears somewhat lacking in regard to the degree of self-assertion that is present.
- (6). The Indifference type is wanting in associative material, its process is apathetic, and it ranks lowest in the strength of the final self-assertive tendency.
- (7). The possibility of a reversal, (all things being equal), is least in the case of the Preference type, and greatest in the Indifference type.
- (8). Reversal with the Preference type is only attained with great difficulty, occupying a more protracted time than the original and exhibiting a distinct weakening of the self-assertive tendency; in the case of the Conflict type there is a slight decrease in difficulty, time and confidence; with regard to the Indifference type both time and confidence remain unchanged, while the difficulty appears to be moderately increased.

- (9). In these cases where the original decision is reaffirmed, there is a marked increase of time and difficulty in the Preference type, with a slight increase of confidence; in the Conflict type the time is slightly decreased, the difficulty unchanged, but the confidence somewhat increased; in the Indifference type, time and confidence appear unchanged, while the difficulty is slightly decreased.
- (10). The principle of "conflict" set up by the effects of the self-assertive tendency of decision, acting in opposition to the submissive tendency to accept and will a new task contradictory to such decision, offers possibilities of experimental development in the field of abnormal psychology.

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